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FEBRUARY 14TH, 1888.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents received since the last meeting were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

From the GOVERNMENT OF NEW ZEALAND.—Statistics of the Colony of New Zealand for the year 1886.

From the AUTHOR.—A Manual of the Andamanese Languages. By M. V. Portman, M.R.A.S., &c.

— The Catawba Language. By A. F. Chamberlain, B.A.

— Recherches Anthropologiques dans le Caucase. Par Ernest Chantre.

— Présentation de quatre Boshimans vivants. Par M. Topinard.

— Crane trépané sur le vivant et après la mort. Par M. Topinard.

— L'Anthropologie Criminelle. Par M. Topinard.

— Mensuration des cranes de la Caverne de Beaumes-Chandes Par P. Topinard.

VOL. XVIII.

B

- From the AUTHOR.—*Mémoires d'Archéologie et d'Ethnographie Américaines.* Par le Dr. E. T. Hamy, liv. 1-3.
- Ueber das Recht der Papuas auf Neu-Guinea. Von Prof. Dr. J. Kohler.
- Ueber das Recht der Goajiroindianer. Von Prof. Dr. J. Kohler.
- Ueber das Recht der Australneger. Von Prof. Dr. J. Kohler.
- Essai d'une classification des instruments quaternaires en silex, et considérations préliminaires sur l'existence de l'homme à l'époque tertiaire dans les environs de Spiennes. Par M. Alph. Cels.
- From the ESSEX FIELD CLUB.—*The Essex Naturalist.* No. 12. December, 1887.
- From the ROYAL ARCHAEOLOGICAL INSTITUTE.—*The Archaeological Journal.* No. 176.
- From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—*The Scottish Geographical Magazine.* Vol. iv. No. 2.
- From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, UND URGESCHICHTE.—*Archiv für Anthropologie.* Band xvii. 3.
- From the KONGL. VITTERHETS HISTORIE OCH ANTIQVITETS AKADEMIEN.—*Antiqvarisk Tidskrift för Sverige.* Del. x. 3, 4.
- From the ARCHAEOLOGICAL SOCIETY OF AGRAM.—*Viestnik hrvatskoga Arkeološkoga Družtva.* Godina x. Br. 1.
- From the MUSEUM.—Bericht über die Verwaltung der königlichen Sammlungen für Kunst und Wissenschaft zu Dresden in den Jahren 1882 und 1883, 1884 und 1885.
- From the SOCIETY.—Proceedings of the Royal Geographical Society. Vol. x. No. 2. February, 1888.
- Proceedings of the Society of Antiquaries of London. Vol. xi. No. 4.
- Journal of the Society of Arts. Nos. 1834-1837.
- Proceedings of the Society of Biblical Archaeology. Vol. x. Part 3.
- Journal and Proceedings of the Royal Society of New South Wales for 1886.
- Bulletins de la Société d'Anthropologie de Paris. 1887 Fas. 3.
- Mémoires de la Société d'Émulation d'Abbeville. Vol. iv.
- Bulletin de la Société de Borda, Dax. 1887. 4.
- Bulletin de la Société Impériale des Naturalistes de Moscou. 1887. No. 4.
- Mittheilungen der Anthropologischen Gesellschaft in Wien. Band xv. Heft 4. Band xvii. Heft 3 und 4.
- From the EDITOR.—*Nature.* Nos. 950-954.
- *Science.* Nos. 256-260.
- *The Photographic Times.* Nos. 328-332.
- *Scientific News.* No. 1.
- *Revue d'Ethnographie.* Tome vi. No. 4.

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The following paper was read by the author:—

DESCRIPTION OF TWO SKELETONS OF AKKAS, A PYGMY RACE FROM  
CENTRAL AFRICA.

By WILLIAM HENRY FLOWER, C.B., LL.D., F.R.S., &c., Director  
of the Natural History Departments of the British Museum.

[WITH PLATES, I, II, AND III.]

SINCE the race of pygmy Negroes called Akkas<sup>1</sup>, inhabiting the Monbotto country of Central Africa, were discovered by Schweinfurth, in the year 1870, they have received considerable attention from various travellers and anthropologists, and general descriptions and measurements of several living individuals have been published, but no account of their osteological characters has hitherto been given. Nor have any specimens been submitted to careful anatomical examination. The two skeletons recently sent to the British Museum by Dr. Emin Pasha are, therefore, of much interest, and I trust that the following description of their more important features will be acceptable to the Institute.

The skeletons are, unfortunately, very imperfect, but still most of the principal bones are present, including the skulls of both, and the pelvis of one. They were both obtained by Emin Pasha in Monbotto, and are described by him as "a full grown male," and "a very old female."

The skeleton of the male consists of the skull, with nearly perfect teeth; the vertebral column, with the exception of the five upper cervical vertebrae; most of the ribs; both scapulae (the left imperfect); all the principal bones of the limbs, but the clavicles and innominate bones are wanting. Part of the base of the cranium, including the condyles and the basion, has been unfortunately cut away. The condition of the bones and teeth shows that it belongs to a full-grown, though not a quite adult person. The basi-cranial suture is closed, and consolidation of the sagittal and lambdoidal sutures has commenced rather prematurely in comparison with the other indications of age. The third molars are all fully in place, though quite unworn, and the surfaces of the other molars are only slightly abraded. The epiphyses of the upper end of the humerus and of the lower end of the femur have but recently united to the shaft, the line of junction being perfectly distinct, and the epiphysis of the posterior border of the scapula is detached.

<sup>1</sup> For a general account of our present knowledge of the Akkas, and their supposed identity with the Pygmies of Homer and Herodotus, and for references to the literature of the race, see "Les Pygmées," by A. de Quatrefages, Paris, 1887, p. 253, *et seq.*

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The female skeleton wants several of the vertebræ, and many of the bones of the hands and feet, but all the large bones of the limbs (except the right femur) and the pelvis are present. It is evidently from a considerably older individual than the other; all traces of the epiphyseal junction of the long bones having disappeared; and of the molar teeth, some have been lost through age and the others are much worn. The vertebræ also present evidences of senile change in the flattening of their bodies, and the development of bony outgrowths from their margins. It is, however, curious that no commencement of consolidation of the sutures between the frontal, parietal, and occipital bones has taken place, so that, judging by this character alone, the skull would have been taken to be younger than that of the male.

The skeleton of the female, being the most perfect, has been carefully articulated, with due allowance for the missing vertebræ and for the intervertebral substances. Its height from the vertex to the ground is exactly four feet or 1,218 mm. Half an inch more might be added for the thickness of the sole of the foot and the scalp to make up the full height of the living person. It is curious in reference to the discussion<sup>1</sup> as to the calculation of the stature from the length of the femur, that the old estimate of the length of that bone being to the height as 275 to 1,000 which was used in the memoirs on the natives of the Andaman Islands,<sup>2</sup> gives a height exactly that of the articulated skeleton. Dr. Beddoe's sliding scale, which allows for a different proportion in the length of the limbs according to the height, although it may be applicable to different individuals of a given race, is quite at fault when applied to these little people, which appear not to have the proportions of dwarfs of large races, but rather those of people of medium or even full stature. This proposition is, I think, fully borne out by the following measurements:—

	Millimetres.
Height of skeleton from vertex to ground .. .. ..	1,218
Height of head (vertical height between vertex and chin) .. .. ..	160
From symphysis pubis to ground .. .. ..	620
From top of trochanter major to ground .. .. ..	620
Leg articulated, from head of femur to heel .. .. ..	640
Vertebral column, from upper margin of atlas to lower margin of last lumbar vertebra, measured along anterior surface ..	395
Vertebral column, from upper margin of atlas to end of coccyx	505

<sup>1</sup> See Dr. Beddoe "On the Stature of the Older Races of England as estimated from the Long Bones," "Journ. Anthropol. Inst.," vol. xvii, No. 3, p. 202 (February, 1888).

<sup>2</sup> "On the Osteology and Affinities of the Natives of the Andaman Islands," "Journ. Anthropol. Inst.," vol. ix, p. 108 (1878); and "Additional Observations on the Osteology of the Natives of the Andaman Islands," "Journ. Anthropol. Inst.," vol. xiv, p. 115 (1884).

	Millimetres.
From the spine of the seventh cervical to the lower end of sacrum (posteriorly in straight line, "the trunk" of Topinard) ..	380
Length of left foot (complete) .. .. .. .. ..	158
Length of upper limb <sup>1</sup> .. .. .. .. ..	550

The proportion of the height of the head to the whole height is therefore  $\frac{1}{7}\frac{9}{10}$ , or as 131 to 1,000. The length of the lower limb (from the trochanter or the pubis) is to the height as 509 to 1,000; the upper limb as 451 to 1,000. On comparing these proportions with those of the elaborate tables given in Topinard's "Anthropologie Générale," it will be seen that the head is smaller than in nearly all races there given (pp. 1070 and 1071), but almost exactly corresponding to the French (132), who seem to have been measured in larger numbers and more accurately than any other race. The limbs (especially the arms) correspond most closely with those of the Negroes, of which such numerous measurements were made during the American war; and the proportions of which to the height are given as follows:—Upper, 452; lower, from pubis to ground, 518 to 1000.

Judging by the individual bones of which the measurements will be given further on, the skeleton of the male was slightly inferior in size to that of the female. It is, I believe, the smallest human skeleton on record, excluding abnormal dwarfs. But as will be seen by the appendix, the living female Akka measured by Emin Pasha, was of still smaller dimensions, her height being only 1,164 mm., or 3 feet 9·8 inches.

In the description of the bones, I propose to follow generally the order and method used in the account of the osteological characters of the somewhat kindred pygmy race, the Andamanese, with which the Akkas form interesting subjects for comparison. There is, however, this great difference to be noted in the two series. That of the Andamanese skeletons of both sexes was sufficiently numerous to eliminate individual peculiarities, and to give averages on which to found reliable race characters, while the Akkas, being only two in number altogether, however interesting in themselves, must afford quite insufficient data for such a purpose. It has, therefore, not been considered necessary to give all the measurements in such detail as in the former communications.

The two skulls resemble each other in their most important general characteristics, although presenting certain well marked individual peculiarities, as will be noticed in the description of the different regions, and seen in the figures.

<sup>1</sup> As the terminal phalanges of the hand are wanting, this measurement is only approximative.

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The cranial capacity of the male is 1,102 cubic centimetres, that of the female only 1,072.<sup>1</sup> The only other people who approach this smallness of capacity are the Andamanese, the Bushmen, and the Veddahs of Ceylon. The average capacity of the Andamanese male is 1,244, the smallest being 1,150; of the female, 1,128, the smallest being 1,025. The Akkas thus show a great diminution, not only on the average male and female Andamanese, but the male is even below the smallest male of that race measured. The average of two male Bushmen in the Museum of the Royal College of Surgeons is 1,330; of four females, 1,214, the smallest being 1,075. The average of five male Veddahs is 1,259. A female of this race measures only 950, being one of the smallest normal adult skulls on record.<sup>2</sup>

The horizontal circumference of the skull of the male is 466 mm.; that of the female, 462. The average circumference of the male Andamanese is 481; that of the female exactly the same as the Akka woman, i.e., 462.

In measuring the length, there is, fortunately, no occasion to enter into the discussion of the relative merits of the glabelloccipital and ophryo-occipital diameters, as the absence of all projection of the glabella makes the two coincide. The length given is therefore the maximum length, and will at the same time coincide with the ophryo-occipital length recorded in former communications. It is curious that the length of the cranium of the male, 168 mm., is scarcely more than half a millimetre more than the average (167·4) of twenty-one Andamanese males. The female is 163 against the Andamanese 160·8. The maximum parietal breadths of the male and female Akka skulls are 125 and 127 respectively, against 135·8 and 133·2 of the Andamanese of the two sexes, showing a considerable reduction in this dimension. This is also expressed by the cranial index, which is 74·4 in the male, and 77·9 in the female Akka; instead of 81·1 in the male, and 82·8 in the female Andamanese.

The absence of basion in the male skull makes it impossible to measure the vertical height in the usual way, but in the female this dimension is 124 mm., slightly lower than in the Andamanese of corresponding sex (125·3), and giving a height index of 76·1.

The basi-nasal length for the same reason cannot be accurately measured in the male, but it may fairly be estimated for the purpose of comparison at 92 mm., which is the actual length in

<sup>1</sup> Measured by Mr. Oldfield Thomas with shot by a modification of Broca's method.

<sup>2</sup> "Catalogue of the Specimens of Osteology and Dentition of Vertebrated Animals in the Museum of the Royal College of Surgeons," Part I, "Man," by W. H. Flower (1879).

the female skull. In the Andamanese this length was 94·6 in the male and 90·3 in the female.

The general form of both crania as seen in the *norma verticalis* (see Plate III) presents a more regular oval than in the Andamanese, the parietal eminences being not only less prominent but placed further forwards, with a fairly elongated, and gradually narrowing occipital region behind them.

The profile views of the two crania (Plate I) show considerable individual differences. In the male the line of the forehead rises vertically from the glabella, then curves gently backwards to the bregma, behind which it rises slightly to the posterior end of the anterior third of the sagittal suture, from which point it descends rapidly to the lambda, beyond which the occipital region projects distinctly backwards before curving round to the under surface of the skull. The greater development of the occipital region is a marked characteristic of this skull as compared with the Andamanese. The female (contrary to the usual characteristics of the sex) has a forehead sloping more gradually from the glabella to the bregma, and also a more elevated mid-parietal region, and rather less occipital projection.

The general surface of both crania is smooth and the muscular ridges are little pronounced. The glabella and supra-orbital elevations, as well as the inion and the occipital ridges are all feebly developed. The line of the upper attachment of the temporal muscle is, however, very distinct in both skulls. The mastoid processes are moderate—rather longer in the female, and broader and flatter in the male.

The sutures are very simple in the male (No. 3, Broca's scale), but both lambdoid and coronal present a fair degree of complexity (No. 4) in the female skull. Small Wormian bones are present in both. There is no trace of metopism in either. In the region of the pterion in the male, the squamosal articulates with the frontal on the right side for a space of 4 mm. On the left side it is separated from it by an equal space. In the female the squamosal and frontal are united on the right side for as much as 11 mm., and the left for 10 mm. There are no epipteritic bones in either. The male is distinctly phænozygous, but the female is not.

The face in both is short and broad with a considerable degree of prognathism. Unfortunately the exact amount of this cannot be indicated in the manner used in previous communications,<sup>1</sup> owing to the absence of the basion in the male and the defective condition of the alveolar margin in the female skull; but it is

<sup>1</sup> See especially "On the Cranial Characters of the Natives of the Fiji Islands," "Journ. Anthropol. Inst.," vol. x, p. 162 (1880).

easy to give a close approximation in both cases. In the male the basi-alveolar line is 100 mm., and the basi-nasal being taken at 92 gives the very high gnathic index of 1,087. In the female with the same basi-nasal length the basi-alveolar was probably not more than 96, and the resulting index is thus 1,043. The mean gnathic index of the two skulls, 1,065, is therefore much higher than that of the Andamanese, in which race the mean of both sexes is only 1,011, and even higher than that of the average of African Negroes of various tribes (viz., 1,044).<sup>1</sup>

The general form of the orbits and of the malar bones is alike in both sexes, only showing the usual sexual characters of increased thickness of the outer margin and more stout conformation of the malar in the male skull. The orbital dimensions and indices in both cases are exactly the same, the latter being 82·9, or within the microseme division of Broca. In the Andamanese the orbits are much higher and rounder in form, the indices being 90·4 and 91·4 respectively in the two sexes, and therefore entering the microseme division. The African Negroes in general are intermediate in this character, having an index of 86·3.

The forward projection of the malar bones, determined according to the method of Oldfield Thomas,<sup>2</sup> gives an index of 107·9 in the male, and the practically identical one of 108·0 in the female, which is again intermediate between that of the Andamanese (107·5) and that of the West African Negro (108·5).

The nasal region presents strongly marked individual characters, especially in the form of the nasal bones, which, in the male skull, show a very normal Negro conformation, and measure in the middle line 23 mm. in length, while in the female they are remarkably reduced, measuring only 13 mm. This, as well as the smaller nasal width in the female gives a very different form to the nasal aperture. They are both strongly platyrhine, the nasal index in the male being as high as 63·4, in the female 55·3. In this character they depart widely from the mesorhine Andamanese, and resemble some of the extreme types of African Negroes and Bushmen. In both the lower margin of the aperture is fairly defined, and the spine moderately developed.

The palatal index of the male, taken by the method recommended in the paper on the cranial characters of the natives of

<sup>1</sup> W. H. Flower, "Catalogue of Specimens of Osteology and Dentition of Vertebrate Animals in the Museum of the Royal College of Surgeons," Part I, "Man" (1879).

<sup>2</sup> "Journ. Anthropol. Inst.," vol. xiv, p. 333.

the Fiji Islands<sup>1</sup> is exceptionally low, viz., 103·8, the general form of the palate being remarkably hypsiloid. The form of the palate of the female appears to have been similar, but owing to its defective condition exact measurements cannot be given.

The mandibles are much alike in general conformation, and of a generally low type. As compared with a well-formed mandible of a European, the horizontal ramus is shallow, and of nearly even height throughout, the mental prominence little developed, the ascending ramus low, especially in the female, and the sigmoid notch shallow.

The teeth of the male are in a very perfect condition, and are of large size. The dental length (upper molars and premolars) is 45 mm., which in comparison with the small general size of the skull as indicated in the basi-nasal length, gives a *dental index* of 48·9, larger consequently than the average of any known race, although exceeded by some individuals of the megadont group.<sup>2</sup>

Taking all the characters of the skulls together into consideration, it will be seen that they conform more with the general type of the African Negro than of any other race. The cranium, especially that of the female, is shorter and rounder than in the generality of Negroes, but still not quite to the same extent as some previous statements as to the form of the head of the Akkas might lead to suppose, being not even brachycephalic, much less "almost spherical" as described by Schweinfurth. In fact, the mean of the two, 76·1, agrees closely with the mean of three living heads previously measured, which is 78·03, or between 76 and 77 for the dried skull. Forty-two African Negroes of various tribes measured in the Museum of the College of Surgeons, gave an average index of 73·6, which corresponds almost exactly with the average obtained by Broca (73·4) from 85 Negroes from the West Coast. In this tendency towards brachycephalism they bear out Hamy's views as to one of the general characteristics of the "Negillo" race, consisting of various tribes of small stature extending across *Aequatorial Africa*. Prognathism, platyrhiny, the elongated narrow form of the palate, and the large size of the teeth, all characteristic features of the Negro races, are not only present, but present in an exaggerated form in the Akkas. One, and perhaps I may say, the only special character (except, of course, the diminutive size) is the markedly microsome form of the orbits; but this is a character of great variability in different individuals; and in

<sup>1</sup> "Journ. Anthropol. Inst." vol. x, p. 161.

<sup>2</sup> See "On the Size of the Teeth as a Character of Race," "Journ. Anthropol. Inst.," vol. xiv (November, 1884). The dental index of male Europeans is 40·5, of African Negroes 43·2, Andamanese 44·4, Australians 44·8, Tasmanians 47·5.

as many as seven out of forty-two ordinary Negroes it is lower than in the present specimens.<sup>1</sup>

The striking difference in so many characters from the skull of the Negritos of the Andaman Islands, has been pointed out in the course of the description.

#### *Cranial Measurements.*

			Male.	Female.
Maximum length ..	..	..	168	163
Height (basi-bregmatic) ..	..	..	—	124
Maximum transverse diameter (parietal) ..	..	..	125	127
Length-breadth index ..	..	..	74·4	77·9
Minimum frontal diameter ..	..	..	82	86
Maximum frontal diameter ..	..	..	103	103
Occipital diameter ..	..	..	100	97
Bi-auricular diameter ..	..	..	107	107
Horizontal circumference ..	..	..	468	462
Vertical transverse circumference ..	..	..	377	385
Transverse arcs, frontal ..	..	..	257	250
— bregmatic ..	..	..	270	278
— parietal ..	..	..	290	297
— occipital ..	..	..	250	232
Longitudinal arcs, frontal ..	..	..	118	108
— parietal ..	..	..	110	120
— occipital ..	..	..	113	107
Length of foramen magnum ..	..	..	—	28
Basi-nasal length ..	..	..	92	92
Basi-alveolar length ..	..	..	100	96
Gnathic index ..	..	..	108·7	104·3
Bi-zygomatic diameter ..	..	..	118	109
Bi-jugal diameter ..	..	..	104	99
Inter-orbital diameter ..	..	..	21	20
Height of face (ophryon to alveolar point) ..	..	..	72	72
Height of orbit ..	..	..	29	29
Width of orbit ..	..	..	35	35
Orbital index ..	..	..	82·9	82·9
Height of nose ..	..	..	41	38
Width of nose ..	..	..	26	21
Nasal index ..	..	..	63·4	55·3

#### *Vertebral Column.*

The curve of the vertebral column in the lumbar region as a race character has lately been studied by Prof. D. J. Cunningham,<sup>2</sup> and Sir William Turner,<sup>3</sup> and an index has been formed

<sup>1</sup> The average orbital index of these forty-two skulls is 86·3.

<sup>2</sup> "The Lumbar Curve in Man and the Apes," Cunningham, "Memoirs of the Royal Irish Academy," No. II (1886).

<sup>3</sup> "Voyage of H.M.S. 'Challenger.'" "Report on the Human Skeletons," Part II (1886).

based on a comparison between the vertical lengths of the anterior and posterior surfaces of the bodies of the lumbar vertebræ. This index in the mean of twelve Europeans, measured by Turner, is 96·0, in five Australians 106·0. In two Andamanese Islanders 99·0, and in three Negroes 99·0. Cunningham gives for Europeans an almost identical index (viz., 95·8), derived from a much larger series of observations, and 105·4 for Negroes, 104·8 for Andamanese, and 107·2 for Tasmanians. These three last come into the category called by Turner "*koilorachic*," or with the lumbar curve concave forwards, while in the European races, on the other hand, it is convex forwards. The Akkas, as might be expected, are decidedly koilorachic; the index of the male being 102·6, that of the female 105·1, giving a mean of 103·8. The details are given in the table below, but it may be remarked that there was some difficulty in estimating the exact dimensions of the vertebræ of the male, owing to the want of union of the epiphysial discs, while in the female, as mentioned before, senile changes, *i.e.*, flattening of the bodies and outgrowths of bone from their margins, had already set in.

*Measurements of Lumbar Vertebræ.*

	Male.			Female.		
	Ant.	Post.	Index.	Ant.	Post.	Index.
First ..	22	23	104·5	18	20	111·1
Second ..	22	24	109·1	20	22	110·0
Third ..	23	25	108·7	20	22	110·0
Fourth ..	23	24	104·4	20	21	105·1
Fifth ..	24	21	87·7	20	18	90·0
Total ..	114	117	102·6	98	103	105·1

*Pelvis.*

Of the various measurements of the pelvis which afford distinctive race characteristics, those which give the general outline of the brim, and from which what is commonly called the "pelvic index" is derived, are undoubtedly the most important. Sir William Turner has divided pelvises into three groups,

*dolichopellic*, *mesatopellic*, and *platypellic*, according as this index is low, medium, or high. The first-named group have narrow pelvises elongated from before backwards (as in the *Simiadæ*), the latter have comparatively wide short pelvic brims. The lowest types of mankind, the Australians, Bushmen, Andaman Islanders, and most Negroes have pelvises generally formed on the former type, while Europeans are the most decidedly platypellic. As before-mentioned, the pelvis is, unfortunately, wanting in the male Akka skeleton, but that of the female is remarkable for its dolichopellic character, the transverse and antero-posterior diameters of the brim being equal (98 mm.), and the index, therefore, 100. It is, of course, only with the pelvises of females that this index can be compared, and the following examples of mean indices of pelvises of this sex belonging to several races will give materials for appreciating the significance of this character.

#### *Extreme Platypellic Forms.*

35 Europeans (Verneau)	..	..	..	..	..	..	78
14 Europeans (Flower)	..	..	..	..	..	..	78
11 Europeans (Turner)	..	..	..	..	..	..	79
Europeans (Garson)	..	..	..	..	..	..	80

#### *Extreme Dolichopellic Forms.*

31 Negroes (Turner)	..	..	..	..	..	..	88
8 Bushmen (Turner)	..	..	..	..	..	..	89
5 Australians (Garson)	..	..	..	..	..	..	91
13 Andamanese (Flower)	..	..	..	..	..	..	96 <sup>1</sup>
1 Akka ..	..	..	..	..	..	..	100

#### *Principal Measurements of the Pelvis on the Plan recommended by Turner.*

Breadth of pelvis	..	..	..	..	..	..	198
Height of pelvis ..	..	..	..	..	..	..	153
<i>Breadth-Height Index</i> ..	..	..	..	..	..	..	77
Between ant. sup. iliac spines ..	..	..	..	..	..	..	188
Between post. sup. iliac spines ..	..	..	..	..	..	..	51
Between ischial tubercles ..	..	..	..	..	..	..	121
Between ischial spines ..	..	..	..	..	..	..	97
Greatest diameter of cotyloid cavity ..	..	..	..	..	..	..	39
Vertical diameter of obturator foramen ..	..	..	..	..	..	..	40
Transverse diameter of obturator foramen ..	..	..	..	..	..	..	26
<i>Obturator Index</i> ..	..	..	..	..	..	..	65
Subpubic angle ..	..	..	..	..	..	..	65°
Transverse diameter of brim ..	..	..	..	..	..	..	96
Antero-posterior diameter of brim ..	..	..	..	..	..	..	96

<sup>1</sup> Only one of these exceeded 100. It was as high as 107·8. The pelvis of a female Bushman in the Museum of the Royal College of Surgeons has an index of 102.

<i>Pelvic or Brim Index</i>	..	..	..	..	..	100
Intertuberal diameter	..	..	..	..	..	88
Depth of pubic symphysis	..	..	..	..	..	14
Depth of pelvic cavity	..	..	..	..	..	68
Height-length of ilium	..	..	..	..	..	95
Breadth of ilium..	..	..	..	..	..	120
<i>Iliac Index</i>	..	..	..	..	..	126
Breadth of innominate bone	..	..	..	..	..	140
Length of os pubis	..	..	..	..	..	56
<i>Pubo-innominate Index</i>	..	..	..	..	..	40
Length of ischium	..	..	..	..	..	65
<i>Innominate Index</i>	..	..	..	..	..	91
<i>Ischio-innominate Index</i>	..	..	..	..	..	42
Length of sacrum	..	..	..	..	..	85
Breadth of sacrum	..	..	..	..	..	83
<i>Sacral Index</i>	..	..	..	..	..	96.5

*Bones of the Limbs.*

The scapulae are of remarkably small size. In that of the male there is a small distinctly defined supra-scapular notch. In that of the female this is replaced by a wide shallow depression, without definite edges, but still it is more distinctly marked than in the majority of the Andamanese, where there is only a gradual and shallow excavation of the whole upper border. For measurements the male could not be used, as the epiphysis of the posterior border had been detached. In the female, the breadth from centre of posterior and outer border of glenoid fossa (A) to where the spine rises from the vertebral border (B) in the right is 81 mm., in the left 84 ; the length from posterior superior (C) to inferior angle (D) 103 mm. in both ; the infra-spinous length (B to D), right 74 mm., left 73 mm. From these measurements the "scapular index" and "infra-spinous index" of Broca<sup>1</sup> are derived, and they are of a very remarkable character, being far above the average of Negro or of any other human scapulae hitherto recorded, as the following comparisons will show :—

	200 Europeans.	21 Andamanese.	6 Negroes.	1 Akka.
Scapular index ..	65.2	69.8	71.7	80.3
Infra-spinous index	89.4	92.7	100.9	112.2

The measurements of the long bones, and the indications they

<sup>1</sup> Broca, "Bulletin de la Société d'Anthropologie de Paris," i, (3<sup>e</sup> ser.), 1878, p. 66. Flower and Garson "On the Scapular Index as a Race Character in Man," "Journal of Anatomy and Physiology," vol. xiv, p. 13 (1879).

14 W. H. FLOWER.—*Description of Two Skeletons of Akkas,*

give of the proportions of the different segments of the limbs are always of interest. The following are actual measurements taken upon the same system as that used for the natives of the Andaman Islands, *i.e.*, the maximum length in a direction parallel to the long axis of the bone, and in the case of the tibia including both malleolus and spine.

	Humerus.		Radius.		Femur.		Tibia.	
	R.	L.	R.	L.	R.	L.	R.	L.
	Male ..	238	233	182	177	326	328	270
Female ..	244	236	194	188	—	334	270	272

The following indices are derived from these measurements.

The inter-membral index, or length of the humerus and radius added together, compared with that of the femur and tibia, the latter being taken as 100, is 67·7 for the male, and 72·9 for the female, the last having larger arms and especially forearms than the male. This is contrary to the rule found with the Andamanese, but of course no general conclusion in such a case can be drawn from single individuals of each sex. The mean index of the two Akkas is 70·3, that of the Andamanese of both sexes 68·3.

The femoro-humeral index is almost identical in the two specimens, being 72·0 in the male and 71·9 in the female. This accords rather with the usual proportion of the European (72·9, Flower, 72·2, Broca), than that of the Andamanese (69·8), and the Negro (69·0, Broca).

The femoro-tibial index in the male is 83·0, in the female 81·1. The proportions of these bones again rather resemble those of Europeans than those of the black races with which they would naturally be compared, this index being 84·6 in Andamanese of both sexes, 84·9 in Australians, 84·7 in Negroes (Humphry), and 82·1 in Europeans.<sup>1</sup>

The humero-radial index, or the length of the radius as compared with the humerus, as is well known, presents greater and more constant differences in the various races of men than any other of the limb characters. It has been found to average 73·4 in Europeans (Topinard), 76·5 in Australians, 79·4 in Negroes, and 80·6 in the natives of the Andaman Islands. In this index the Akkas agree completely with the other Negroid races, that of

<sup>1</sup> "Journ. Anthropol. Inst.", vol. x, p. 20.

the male being 76·2, that of the female 82·9, giving a mean of 79·5. It may be noted that the proportions of these bones in the two sexes are again the reverse to the Andamanese, in whom the index of the male is 81·5, of the female 79·7.

The individual bones are generally well proportioned, though rather slender and smooth, and with the ridges for muscular attachments not very strongly marked. It may be noted that there are small intercondyloid foramina in both humeri of the male, and in one (the right) of the female. The tibiae are not platycnemic. Those of the male are rather rounded, having an index (at the middle of the length of the bone) as high as 77·5. Those of the female are, as with the bones generally, of more slender form, the index being 71·0. In the Andaman Islands these indices were 64·7 and 67·5 in the male and female respectively.

In Topinard's "Anthropologie" (p. 1099) is an interesting table showing the influence of the general size of the body, upon the proportions of its component parts, as ascertained by measurements upon a number of skeletons of Europeans. On comparing the proportions of the mounted Akka skeleton with those of the table, allowance must of course be made for difference of race and sex, but it is singular that in every particular, its proportions agree rather with the tall than with the short group. As shown before in the height of the head, it is now seen in the limbs that there is nothing in the characters or proportions of these little people resembling those of dwarfs of other races, a result which is certainly different to what might have been anticipated.

*Proportions according to height. Stature = 100.*

	Tall French. Height 2·06 to 1·73.	Short French. Height 1·43 to 1·60.	Akka ♀. Height 1·218.
Trunk (seventh cervical to end of sacrum)	33·7	34·7	31·1
Humerus .. ..	19·8	20·0	19·8
Radius .. ..	14·4	14·5	15·7
Femur .. ..	27·7	27·2	27·5
Tibia .. ..	22·4	21·8	22·3

The most striking difference between the Akka and the French skeletons is the proportions of the trunk, but this is a measurement on which it is impossible to place absolute reliance in

articulated skeletons. It is, moreover, probably a race characteristic, as in the table at p. 1066 of Topinard's work, showing this proportion in skeletons of different races, in the Negroes it is given as 31·9, and in Tasmanian as 30·4. The Akkas might naturally be supposed rather to resemble these than the Europeans. The difference in the proportion of the radius is also, as pointed out, a race character.

#### *Conclusions.*

The evidence afforded by these skeletons quite corroborates the view previously derived from external observation that the Akkas are among the smallest, if not actually the smallest, people upon the earth. There is no reason to suppose that they were selected as being in any way exceptional specimens, and yet they are both of them smaller than any other normal skeletons which have hitherto been available for comparison; smaller, that is, than the smallest Bushman skeleton out of three in the Museum of the Royal College of Surgeons,<sup>1</sup> and smaller than any out of the twenty-nine skeletons of diminutive inhabitants of the Andaman Islands, the measurements of which I have recorded. The most liberal calculation of the height of these two skeletons places the male at not more than 4 feet, and the female not an inch above, while the living female measured by Emin Pasha is barely 3 feet 10 inches. The results previously obtained from the measurements of about half a dozen living Akkas are not quite so low as these, varying from 1,216 to 1,420 mm., and give a mean for both sexes of 1,356 mm., or 4 feet 5·4 inches.<sup>2</sup> Schweinfurth's original measurements were unfortunately lost, and the numbers since obtained are certainly insufficient for establishing a true average of the race. It is, moreover, possible that some of the individuals measured were not of pure blood and any mixture with other tribes must tend to increase the stature, or that their growth had been promoted by the exceptionally favourable circumstances under which they had been living with their European protectors, as in the case of those brought from the Monbotto country by Miani, and who were for many years living in Italy.

In the list given in the third edition of Topinard's "Anthropologie" (1879), only two races appear which have a mean height below 1,500 mm., viz., the Negritos, 1,478, and the Bushmen, 1,404; the Veddahs of Ceylon, being (according to Bailey) 1,534. Of the size of the Negrito inhabitants of the

<sup>1</sup> The height of this skeleton is 1,332 mm. (4 feet 4·5 inches), its shortest femur measures 356 mm., that of the male Akka being only 326 mm.

<sup>2</sup> Quatrefages, *op. cit.*, p. 260.

Andaman Islands we have abundant and exact evidence, from the measurements of the living by Mr. Man, and the skeletons by myself and others, and, as shown above, the Akkas are considerably below them in stature. That this is also the case with the Bushmen I have little doubt, as although single individuals have been stated by travellers to be of extraordinarily small size, all those who have been submitted to actual anatomical examination, and whose skeletons are preserved in Museums, considerably exceed the Akkas in height.

This point being settled it remains to show to what races the Akkas are most nearly allied.

That they belong in all their essential characteristics to the black or Negroid branch of the human species there can be no doubt, in fact they exhibit all the essential characters of that branch, even to exaggeration. With regard to the more rounded form of head, Hamy<sup>1</sup> has pointed out that in Equatorial Africa, extending from the west coast far into the interior, are scattered tribes of Negroes, distinguished from the majority of the inhabitants of the continent by this special cranial character, as well as by their smaller stature. The Akkas are grouped by Hamy and Quatrefages as members of this so-called "Negrillo" race.

Their small size has naturally led some anthropologists (including Schweinfurth) to seek affinities for them with the diminutive African race inhabiting the southern portion of the continent, the Bushmen, but beyond certain characters met with in the whole Negroid branch, including the frizzly hair, there is little in common between them. The Bushmen are a very strongly marked race, and both their external appearance and osteological characters are so exceptional that they can never be compared with any other. Their only near allies are the Hottentots, formerly inhabiting the same region of the world.

The peculiar oblong form of the skull, its vertical forehead, straight sides and flat top, the wide flat space between the orbits, the extremely small and flat nasal bones, and the absence of prognathism at once distinguish the skull of the Bushmen from that of the Akka. Moreover, the well-known and characteristic features and yellow complexion of the Bushmen, are quite unlike those of the Akkas whose portraits have been given; nor do these latter appear to possess the special characters, steatopygy and elongated nymphæ, so prevalent among the Bushmen.

Sufficient comparisons have been drawn between the Akkas and the Andamanese to show that there is no close relationship between the former and the Negritos of the east, their position

<sup>1</sup> "Essai de coordination des matériaux récemment recueillies sur l'ethnologie des nigrilles ou pygmées de l'Afrique équatoriale," "Bulletin de la Société d'Anthropologie de Paris," Tome 2 (Ser. III), p. 79 (1879).

then remains determined as belonging to the division of the Negro race, to which Hamy has given the appropriate name of Negrillo.

#### APPENDIX.

Observations taken by Dr. Emin Pasha upon a full-grown Akka woman who lived several years in his house at Lado; upon the system given by Broca in the "Instructions Anthropologiques."

#### *Observations Anthropologiques sur le Vivant.*

No. 15 (normal).

Date : le 4 Mai, 1883.

Nom du sujet : Menguetté.

Nation : Akka.

Lieu de l'observation : Lado.

15-16 ans, mariée.

Profession : servante.

Nom de l'observateur : Dr. Emin

Bey.

Né à Boro (pays des Méadjo).

Race : Nègre.

Le sujet est-il maigre, gras ou moyen ?  
Gras.

Pulsations par minute ... 96 puls.  
Respirations par minute ... 22 respir.

#### DÉTAILS DESCRIPTIFS.

Couleurs : Peau parties nues No. 28  
couvertes id.

Cheveux... ... No. 41

Barbe ... ...

Yeux ... ... No. 3

Cheveux sont-ils droits, rudes, bouclés  
friés ou laineux? abondants et  
laineux.

Barbe est-elle abondante, rare ou  
nulle?

Peau : glabre, un peu velue ou très-  
velue? Très-velue.

Forme du profil du nez : platyrhinien  
aplatis.

Lèvres : grosses, moyennes ou fines?

Moyennes.

Droites ou renversées en  
dehors? un peu renversées  
en dehors.

Dents : grandes, moyennes ou petites?  
petites.

Dents incisives : verticales, un peu  
obliques ou très-obliques? un peu  
obliques.

Denture : très-bonne, bonne, médiocre,  
mauvaise ou très-mauvaise? très-  
bonne.

#### REMARQUES PARTICULIÈRES.

Oreilles grandes, lobules attachés.

Seins bien grands: auréole grande,  
noirâtre.

Mains petites.

#### POUR NORME.

N.B.—Les mesures ont été prises avec  
l'aide d'un excellent appareil français  
dont M. Vossion a bien voulu me  
faire cadeau.

#### MESURES DE LA TÊTE.

##### A. Crâne.

1 <sup>o</sup> Diamètres.	mm.
Antéro-postérieurs : maximum	166
id. : iniaque	157
Transverses : maximum	133
sous-auriculaire	119
temporal, maximum	128
frontal, minimum	107
Vertical auriculaire	122.5
2 <sup>o</sup> Courbes.	
Inio-frontale totale	318
sa partie frontale totale	137
sa partie sous-cérébrale	
antérieure	12
Horizontale totale	492
sa partie antérieure	248
Transversale bi-auriculaire	326
id. sus-auriculaire	287

#### B. Face.

1<sup>o</sup> Angle facial de Camper ... 73°

2<sup>o</sup> Pour les indices.

Du point mentonnier à la  
naissance des cheveux ... 136

De l'ophryon au point alvéolo-

taire ... ... 70

largeur bi-zygomaticque ... 110

longueur du nez ... ... 43

largeur du nez ... ... 30

3<sup>o</sup> Longueurs.

de l'ophryon à la naissance des  
cheveux ... ... 31

de l'ophryon à la racine du nez 10

" au point sous-nasal 53

du point sous-nasal au point

alvéolaire ... ... 21

du point sous-nasal au point

mentonnier ... ... 48

hauteur du menton ... ... 26

4<sup>o</sup> Largeurs

bi-orbitaire ... ... 88

bi-carunculaire ... ... 29

palpébrale ... ... 26

bi-malaire ... ... 101

buccale ... ... 41

bi-geniaque ... ... 95

5<sup>o</sup> Mesures obliques.

genio-nasale ... ... 87

genio-mentonnière ... ... 88

#### MESURES DU TRONC ET DES MEMBRES.

1 <sup>o</sup> Hauteurs au-dessus du sol.	mm.
du vertex (taille du sujet) ...	1164.5
du conduit auditif ...	1042
du bord inférieur du menton	975
de l'acromion ...	958
de l'épicondyle ...	735
de l'apophyse styloïde du	
radius ...	566
du bout du doigt médius ...	397.5
de la fourchette sternale ...	944
du mamelon	
de l'ombilic ...	681
du bord supérieur du pubis	582.5
du raphé du périnée ...	477
de l'épine iliaque antéro- supérieure ...	651
du bord supérieur du grand trochanter ...	587.5
de la ligne articulaire du	
genou ...	293
du sommet de la malléole interne ...	57
de la saillie du mollet ...	230.5
2 <sup>o</sup> Membre supérieur.	
la grande envergure ...	1245
le grand empan ...	149
le petit empan ...	165
longueur du pouce (face dor- sale) ...	47
" du medium (id.)	79
3 <sup>o</sup> Tronc.	
distance du deux acromions	228
longueur de la clavicule ...	110
largeur du thorax ...	201
circonférence du thorax sous les aisselles ...	620
circonférence du thorax à la ceinture ...	702
distance des deux épines iliaques ...	202
" max. des deux crêtes iliaques ...	204
distance m. des deux grands trochanters ...	211
4 <sup>o</sup> Membre inférieur.	
circonférence max. de la	
jambe (mollet) ...	247
circonférence min. de la	
jambe (sus-malléolaire) ...	171
longueur du pied totale ...	196
" " pré - malleo- laire ...	148
" du gros orteil (face dorsale) ...	36
5 <sup>o</sup> Hauteur du vertex au-dessus sol, le sujet étant assis ...	600

n  
—  
n.  
4.5  
2  
5  
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7  
1  
7.5  
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5  
3  
1

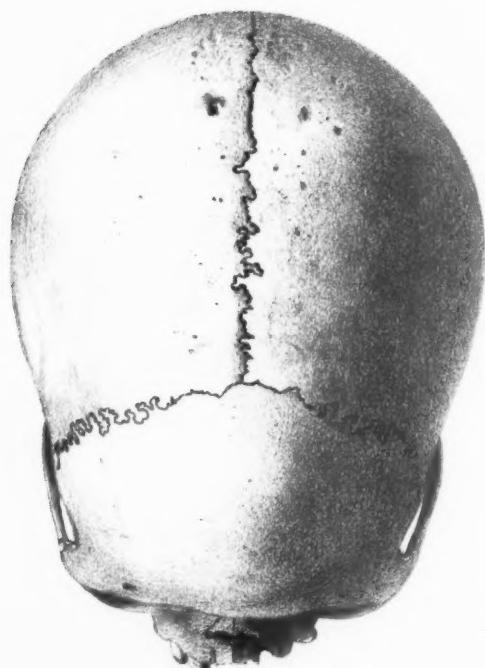
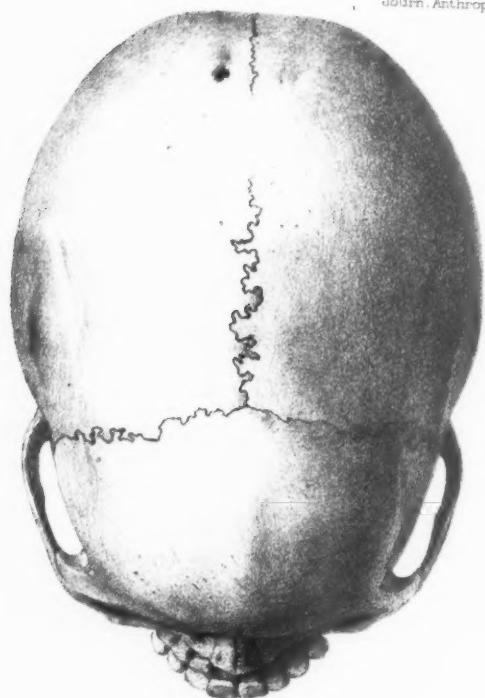


J. Smit del et lith.

SKULLS OF AKKAS.

Modern Brain-susp.





$\frac{7}{8}$  nat. size.

J. Smit del et lith.

SKULLS OF AKKAS.

Mintern Bros. imp.

*Description of Plates I, II, and III.*

Skulls of the male and female Akkas. The former in each case is placed in the upper part of the plate. Half the natural size. Drawn without perspective.

Plate I	..	..	Lateral surface.
Plate II	..	..	Facial surface.
Plate III	..	..	Upper surface.

## DISCUSSION.

MR. HYDE CLARKE said that in 1874 his attention was called to the Akkas by his old friend, the African traveller and naturalist, Marchese Orazio Antinori. Being supplied with the materials he examined the language and found it conformed with the general body of pre-historic languages throughout the world. It showed some resemblances to the language of the Obongo dwarfs to the south, discovered by Du Chaillu. It also showed resemblances to the Naga of India and the Carib of South America. Speech-language is a late event in the historical scale, and was received from a cultured race and not locally developed. His own speculations that there was a community of many words among the short races was so far true on account of the community of all languages; but in speaking of languages of short races he had pushed the speculation into the regions of error, as had the leading men of science who appropriated classes of language to frizzled or tufted hair. He concurred with Prof. Flower as to the great interest of these dwarf races, the subject of pre-historic truth and fable. He thought that the stories of dwarfs, giants, and cannibals came not from the taller races, but from the dwarf or oppressed races. To a man of 4 feet a tall man would have the semblance of one of 9 or 10 feet to ourselves. The story of the pygmies fighting with cranes had perhaps its origin in Bushmen hunting ostriches. There was one problem awaiting solution, the relation of the Japanese to the short races of Africa, on which he had published some observations.

PROF. THANE, DR. GARSON, MR. OLDFIELD THOMAS, and the PRESIDENT also joined in the discussion, and the AUTHOR replied.

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The following paper was read by the Author:—

*On SKULLS from the HINDU KUSH DISTRICT.*

By J. G. GARSON, M.D., V.P.A.I., Lecturer on Comparative Anatomy at Charing Cross Hospital.

THE skulls which I have the pleasure of bringing under your notice to-night, were obtained recently during a journey through Chitral, a district of country situated south-east of the Hindu Kush range of mountains, in about the 36th degree of north latitude, and 74th degree east longitude. This portion of Asia has hitherto been little explored by travellers, and, as I believe, no skulls have previously been brought home to any of our European Museums from it, there is a certain amount of interest attaching to these on the table before us, which render it desirable that their characters should be described and recorded in the pages of our "Journal." The skulls have been presented to the Museum of the Royal College of Surgeons of England, where they will henceforth be carefully preserved and rendered available for scientific study.

Little seems to be known regarding the physical characters of the people inhabiting this region. I have only been able to find the very general and indefinite statements that their features show them to be pure Aryans, and that they consist of several tribes. Bidulph, however, in his work on "The Tribes of the Hindu Kush," gives valuable information regarding the languages spoken in this district. Having been unable to obtain information regarding the physical characters of the people, I am obliged to confine my remarks, on the present occasion, to their craniology, and abandon any attempt at comparing the characters presented by the living with those of the skeleton, though I am fully aware of the importance of so doing, and the incompleteness of any description containing an account of one set of characters only.

The series consists of five specimens, one of which was taken from a grave at Parplish, a district where the Khowar dialect is spoken; another was found under a mass of stones at Ghizar, below the Pandar Lake, and near the junction between Khowar and Shina speaking populations; the other three are reputed to be those of Yasinese, a tribe speaking the Bouriski dialect, obtained at Garkuch, which is not, however, in Yasin territory; but there is the tradition among the people of Garkuch, that these, and many others buried in the caves amongst the rocks near the village, are the remains of Yasinese who were slain by Ger Bhennau, a Khan who invaded and conquered Garkuch about 80 years ago. These Yasin skulls have belonged to middle-aged persons, while the other two specimens are those of aged persons, as shown by the atrophied condition of the maxillary bones.

When the skulls are viewed as they are arranged in a row on the table before you, it will be readily seen that in their general characters they present a close resemblance to one another, but, in each specimen, there are minor differences which may be detected on closer examination. These differences are particularly marked in the specimen obtained from Ghizar, and are sufficient to distinguish it from the others, between which the differences are more of an individual, than of a racial or tribal character.

The general outlines of the crania, when viewed from above, may be called "lozenge-shaped," that is to say, they have a regular and nearly oval outline. In one of the Yasin crania, (marked 630 B), the forehead is considerably broader than in the others, hence its outline has a squarer appearance than the rest; in another of the Yasin skulls (marked 630 C), the parietal eminences are strongly developed, which gives it an irregularly oval outline. Reference to the table of measurements will show that the actual length of the cranium is very constant in the whole series, varying only 5 mm., the longest cranium measuring 181 mm. while the shortest is 176 mm. Somewhat greater variation occurs in the measurement of maximum breadth, which varies from 140 mm. in the broadest to 128 mm. in the narrowest specimen. The cephalic index, which indicates the relation of breadth to the length of the cranium, varies from 72·3 to 79·5. Two of the specimens, namely, one of the Yasin skulls (630 C), and that from Ghizar, belong, under the international system, to the dolichocephalic group (with indices from 70–74·9), all the other specimens are mesaticephalic (with indices from 75–79·9); but while the other two Yasinse skulls are at the lowest end of this group, their indices being between 75 and 76, the cranium from Parplish is at its upper end, having a cephalic index of 79·5.

The height of the crania is in all cases less than the breadth, consequently the height or altitudinal index is always lower than the cephalic index, averaging in the series 71·2 while the cephalic index averages 75·4. In the cranium from Parplish, above noted as having the highest cephalic index, the height index is only 72·1.

The forehead is somewhat receding in all the specimens except the Yasin skull, No. 630 B, in which it is exceedingly vertical, and also considerably broader than in any of the others. The superciliary ridges and glabella are feebly developed in all cases except the specimen from Ghizar in which they are prominent and strongly developed. The frontal suture is completely obliterated in every instance except in the Yasinse skull, No. 630 B. The other sutures are simple nearly closed in the Yasin

skull, No. 630 C, but considerably more open in the others, notwithstanding the fact that some of them have belonged to older persons. In complexity the sutures vary from Nos. 3–4 of Broca's table.<sup>1</sup> Wormian bones varying in size from 6–10 mm. in diameter are present in the parieto-occipital sutures of nearly all the specimens, and an epiteric bone is developed on the right side of the Parplish specimen. The mastoid processes are small in all cases except the Ghizar skull. The surface of the cranium is generally smooth and rounded, there being an entire absence of roughened surfaces: the lines on the frontal bone marking the attachment of the temporal fascia are well defined. The posterior projection of the occipital bone is well marked. The inion is very feeble except in the Parplish skull where it is more pronounced.

The cranial capacity could be measured in only four specimens, the Ghizar skull not being sufficiently complete to permit of being cubed. The average capacity of the four crania is 1,376 c.c., measured with shot strictly in accordance with Broca's method. The average is reduced by the small capacity of the Yasin skull, No. 630 C, which measures only 1,223 c.c., or 157 c.c. less than the next smallest cranium.

Passing on to the characters of the facial portion of the skull we find that the *gnathic index*, which indicates the degree of prominence of the maxillary bones and of the face generally, averages 92·1 in the Yasin skulls—the only specimens in which it could be determined. In the most orthognathous skull the index is 89·8, and in the most prognathous it is 93·9. All these specimens, therefore, range well under the upper limits of the orthognathous group (98·0),<sup>2</sup> and indeed indicate a greater degree of orthognathism than obtains amongst Europeans, in whom the gnathic index averages 96·2.

The form of the nasal portion of the face is long and narrow in all cases except the Yasin skull, No. 630 B, in which it is broad in proportion to the length. The average nasal index is 45·8, which places them in the leptorhine group (below 48·0). The average index is considerably raised by the skull, No. 630 B, just mentioned, having an index of 52·9 which is almost the highest limits of the mesorhine group. The high index of this specimen is produced by the breadth of the nasal opening being considerably greater than in the other specimens, while the length measurement on the other hand is normal. It is possible that the breadth is somewhat exaggerated by the margins of the opening having been broken away a little as they are very thin.

<sup>1</sup> "Instructions Craniologiques."

<sup>2</sup> Flower, "Catalogue of Human Osteology in the Museum of the Royal College of Surgeons of England."

The curve of the nasal bones is long and open, corresponding to that indicated by No. 3 of Broca's table, except in the case of the Yasinse skull, No. 630 C, in which it is short and more acute, corresponding to No. 1 Broca. The under margin of the nasal opening is sharp and well defined. The nasal spine is small in size, corresponding to No. 2 of Broca's tables. The orbits are very round and open, the average orbital index being 97·4. The upper rim of the orbits is thin and smooth. The interorbital width is considerable in some instances, but normal in others. The naso-malar index, which expresses the relative proportion of the arc measured from the most posterior part of the external margin of one orbit over the nose to the corresponding point of the other orbit, named in the table the *Jugo-nasal arc*, to the transverse diameter between these points on the orbital rims, named in the table the *Internal bijugal diameter*, this being taken as 100, averages 110·1, and shows very little variation in the four specimens where it could be ascertained. This index is one of considerable importance, as it indicates exactly the relative projection of the nose beyond the plane of the external margins of the orbital cavities, and thus indirectly indicates the degree of acuteness or obtuseness of the nasi-malar angle, and that with a much greater degree of accuracy than could ever be realised by direct measurement of the angle itself. Mr. Oldfield Thomas<sup>1</sup> found this index averaged 111·1 in sixteen Caucasians; 105·9 in nine Mongolians; and 107·4 in nine Timor Laut Malays. Thus in the Mongolians this index is very low, indicating great flatness of the face, and consequently a very obtuse nasi-malar angle, which we know to be one of the most marked characteristics of their physiognomy, whereas in the Caucasians the reverse obtains. These fundamental distinctions between the two races being well established, the naso-malar index of these Chitral skulls clearly indicates that they are in no way related to the Mongolian race as it might not unnaturally have been supposed they were.

The facial index, formed by estimating the proportions which the nasio-mental length bears to the bizygomatic breadth, could only be ascertained in two Yasin skulls, Nos. 630 B and C, in which it is 84·4 and 90·8 respectively. The mid-facial index, or the relative proportion between the nasio-alveolar length and the bizygomatic breadth could be accurately determined in the three Yasinse skulls, in which it is very constant and averages 54·2, making them dolichofacial, or leptoprosopic (= 50 and upwards), according to the Frankfurt craniometric agreement.<sup>2</sup>

The mandible is present in two of the Yasinse specimens (630 B and C) and the Ghizar skull, but in this latter

<sup>1</sup> "Journ. Anthropol. Inst.", vol. xiv, p. 333 (1835).

<sup>2</sup> "Arch. f. Anthropol."

specimen it has become considerably altered from the teeth having been lost during life. The gono-zygomatic index, or the relative proportion between the bigoniac diameter and the bizygomatic diameter ( $= 100$ ) is 73·4 and 73·3 respectively in the Yasinse skulls, and 89·5 in the Ghizar skull; in this latter, therefore, the mandible is considerably broader posteriorly than in the Yasinse skulls. The two Yasinse show considerable differences in the form of the anterior portion of the mandible: in 630 B it is broad and massive, while in the other, 630 C, the chin is narrow and pointed.

The palato-maxillary length and breadth could only be measured in the Yasinse skulls, and in them it varies considerably, being broad in 630 B, narrow in 630 C, and intermediate in 633 D. This causes considerable variety in the index, or the relation of breadth to length (the latter  $= 100$ ), which ranges from 129·2 in 630 B to 106 in 630 C.

Having noted the chief characters presented by these skulls, the question naturally will be asked—What affinities do they indicate that the people of the district whence they were obtained have to neighbouring nations? The series is far too small to base any reliable conclusions on regarding this important point, but I may say with considerable confidence that the variety which has been shown to exist in different parts of the skull, between the individual specimens, shows clearly that they are not those of a pure and homogeneous race, but are those of a mixed race, and likewise that the characters of the face, especially the naso-malar angle, show that they have no affinities with the Mongolians. The number of Afghan skulls at my disposal prevents any reliable comparison being made with them. For the present it will be best to consider them as being of the same stock as the inhabitants of Northern India.

#### CRANIAL AND FACIAL INDICES.

No. in Museum Catalogue.	Locality whence obtained.	Cephalic.	Height.	Gnathic.	Total facial.	Mitt-facial.	Naso- malar.	Nasal.	Orbital.	Palito- maxillary.
630 B	Yasin	75·1	70·7	89·8	81·4	52·4	110·1	52·9	97·4	129·2
630 C	Yasin	72·3	69·5	93·9	90·8	55·8	109·7	47·9	92·1	106
630 D	Yasin	75·8	72·5	92·7	—	54·4	110·8	44·9	100	118·4
630 E	Parplish	79·5	72·1	—	—	—	109·7	37·7	100	—
630 F	Ghizar	74·3	71·5	—	—	—	—	—	—	—
Total ...		3770	3563	2764	1752	1626	4403	1834	3895	2536
Average ...		75·4	71·2	92·1	87·6	54·2	110·1	45·8	97·4	117·9

CRANIAL AND FACIAL MEASUREMENTS.

No. in Museum Catalogue.	Locality whence obtained.	Maximum length.	Maximum breadth.	Minimum frontal breadth.	Basio- bregmatic height.	Horizontal circumference.	Nasio- crano- basilar arc.	Basio- nasal diameter.	Total longi- tudinal cir- cumference.	Mento- nasal diameter.	Alveolo- nasal diameter.	Basio- alveolar diameter.	Jugo- nasal arc.
630 B	Yasin	181	136	101	128	515	400	98	498	108	66	88	109
630 C	Yasin	177	128	91	123	483	380	99	479	109	67	93	102
630 D	Yasin	178	134	95	129	500	385	96	491	—	68	98	103
630 E	Parpish	176	140	96	127	508	393	97	490	—	c 63	—	102
630 F	Ghizar	179	133	88	128	c 490	380	102	492	—	c 61	—	—
Totals ...		691	671	471	635	2496	1958	492	2450	217	325	279	416
Average ...		178·2	134·2	94·2	127	499·2	391·6	98·4	490	108·5	65	93	104

No. in Museum Catalogue.	Locality whence obtained.	Internal bifocal diameter.	Inter- orbital width.	Bizygomatic diameter.	Bijugular diameter.	Superior bifocal diameter.	Bigonic diameter.	Nose.	Breadth.	Breadth.	Orbit.	Height.	Palato-maxillary.
630 B	Yasin	99	26	128	116	92	94	51	27	38	37	48	62
630 C	Yasin	93	23	120	105	84	88	48	23	38	35	50	53
630 D	Yasin	93	23	125	110	85	—	49	22	35	35	49	58
630 E	Parpish	93	21	125	108	91	—	53	20	37	37	—	—
630 F	Ghizar	—	—	124	111	87	111	c 45	23	—	31	—	—
Totals ...		378	93	622	580	439	293	246	115	148	175	147	173
Average ...		94·5	23·3	124·4	110	89·8	97·7	49·2	23	37	35	49	57·7

Measurements with c placed before them are only approximate, and have not been included in calculating indices.

## DISCUSSION.

Dr. W. T. BLANFORD pointed out that many of the tribes inhabiting the Himalayas and Hindu Kush were of mixed origin, and that throughout Central Asia people of Mongolian descent were everywhere found intermingled with those of Persian derivation.

Prof. THANE and Prof. FLOWER also took part in the discussion.

FEBRUARY 28TH, 1888.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of HENRY C. COLLYER, Esq., of Beech Holm, Park Hill Road, Croydon, was announced.

The following presents were announced, and thanks voted to the respective donors :—

## FOR THE LIBRARY.

- From the AUTHOR.—Social History of the Races of Mankind.  
Second Division. Oceano-Melanesians. By A. Featherman.
- Race and Language. By Horatio Hale.
- From the PEABODY MUSEUM OF ARCHAEOLOGY AND ETHNOLOGY.—The Twenty-first Report of the Museum.
- From the ESSEX FIELD CLUB.—The Essex Naturalist. Vol. ii, Nos. 1, 2.
- From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, UND URGESCHICHTE.—Correspondenz-Blatt. 1887, Nos. 10-12; 1888, No. 1.
- From the SOCIÉTÉ IMPÉRIALE DES AMIS DES SCIENCES NATURELLES, D'ANTHROPOLOGIE ET D'ETHNOGRAPHIE, MOSCOU.—Transactions. Vol. xlvi, fas. 1, 2; Vol. xlvii, fas. 1, 2; Vol. xlviii, fas. 1; Vol. xlix, fas. 1, 2, 3; Vol. l, fas. 1, 2; Vol. li, fas. 1; Vol. lii, fas. 1, 2, 3.
- From the SOCIETY.—Proceedings of the Royal Society. Nos. 261, 262.
- Journal of the Society of Arts. Nos. 1838, 1839.
- Boletim da Sociedade de Geographia de Lisboa. 7<sup>a</sup> Serie. Nos. 3, 4.
- VIII. Jahresbericht der Geographischen Gesellschaft von Bern. 1885-1887.
- From the EDITOR.—Nature. No. 956.
- Timehri. No. xii.
- Science. Nos. 261, 262.
- Photographic Times. Nos. 333-335.

The following paper was read, on behalf of the author, by Dr. E. B. Tylor:—

*NOTE on the JAPANESE GO-HEI, or PAPER OFFERINGS to the SHINTŌ GODS.*

By BASIL HALL CHAMBERLAIN. (Communicated by Dr. E. B. TYLOR, F.R.S.)

[WITH PLATE IV.]

SOME European travellers have imagined that the heathen Japanese, prompted by equal frugality and irreverence, offer paper to their gods because it is the cheapest article at hand.

Others of a more curious turn of mind, have speculated on the coincidence of sound between *ka. ii*, "god," and *kami*, "paper." The coincidence is fortuitous, *kami*, "paper," being apparently the corruption of a Chinese term, while *kami*, "god," is a native word meaning "above," "superior," and hence applied to "governors of provinces," the "government" in general, and to the "gods" themselves. Moreover, though paper is now used in the ceremonies of the Shintō religion, this was not so in early days, i.e., in days preceding the eighth century of the Christian era. The offerings then were made of two kinds of cloth—a white kind made of the paper-mulberry (*Broussonetia papyrifera*), and a blue kind made of hemp. Such cloth was the most precious article in the possession of a population to whom luxury and art were unknown. Later on, when Chinese civilisation had brought a variety of manufactures in its train, hempen cloth ceased to be regarded as a treasure worthy of the divine acceptance; and, frugality perhaps helping, and partly also in accordance with that law of progress from the actual to the symbolical which characterises all religions, paper began to be used instead. We cannot tell the date of the change, Shintō having suffered such eclipse from the eight to the seventeenth centuries that little regarding its mediæval history has been preserved. During all that time Buddhism reigned supreme.

The specimens of *go-hei* on a stand (Pl. IV, fig. 1), such as is placed before the altar, were cut for me by Mr. Kakinuma Hiromi, an aged Shintō priest, who served for years at the shrine of Jeyasu at Nikkō and elsewhere. They are therefore only exactly representative of the pattern sanctioned by his sect, the *Yoshida-ryū*.

The *go-hei* of the other great Shintō sect, the *Shirakawa-ryū*, are slightly—very slightly—different. It should also be mentioned that the most important of all Shintō temples (those of

Ise, Igumo, and Kashima, and a few others) follow precedents of their own in this as in other matters of ritual. The chief distinction seems to be that caused by the varying number of the folds. While the Yoshida sect sanctions the use of four folds in the paper, the Shirakawa sect doubles the number and has eight (*see fig. 2, Pl. IV*). Having no wooden stand, each stick with its *go-hei* and hempen string should be stuck in a small vase, pot, or section of bamboo, such as is used for holding Japanese pencils.

The stickless *go-hei* (*fig. 3*) is a specimen of the shape adopted when the *go-hei* are to be hung in lines to a cord, as is often done in front of temples, also in front of houses at New Year time.

There is said to be no symbolism attaching to the shape, number of folds in the paper, length of the stick, &c. Each sect, or great temple, has clung to its traditional practice in these matters; that is all. The same is true of the other Shintō ceremonies, such as the offerings of rice, fish, and rice-beer to the gods. And what the priests say on this subject I incline to accept as true. Shintō appears to me, after a study of its chief documents carried on through a series of years, to consist not of fossilised ideas, but of fossilised ceremonies. The Japanese had few ideas before China and (through Buddhism) India were thrown open to them.

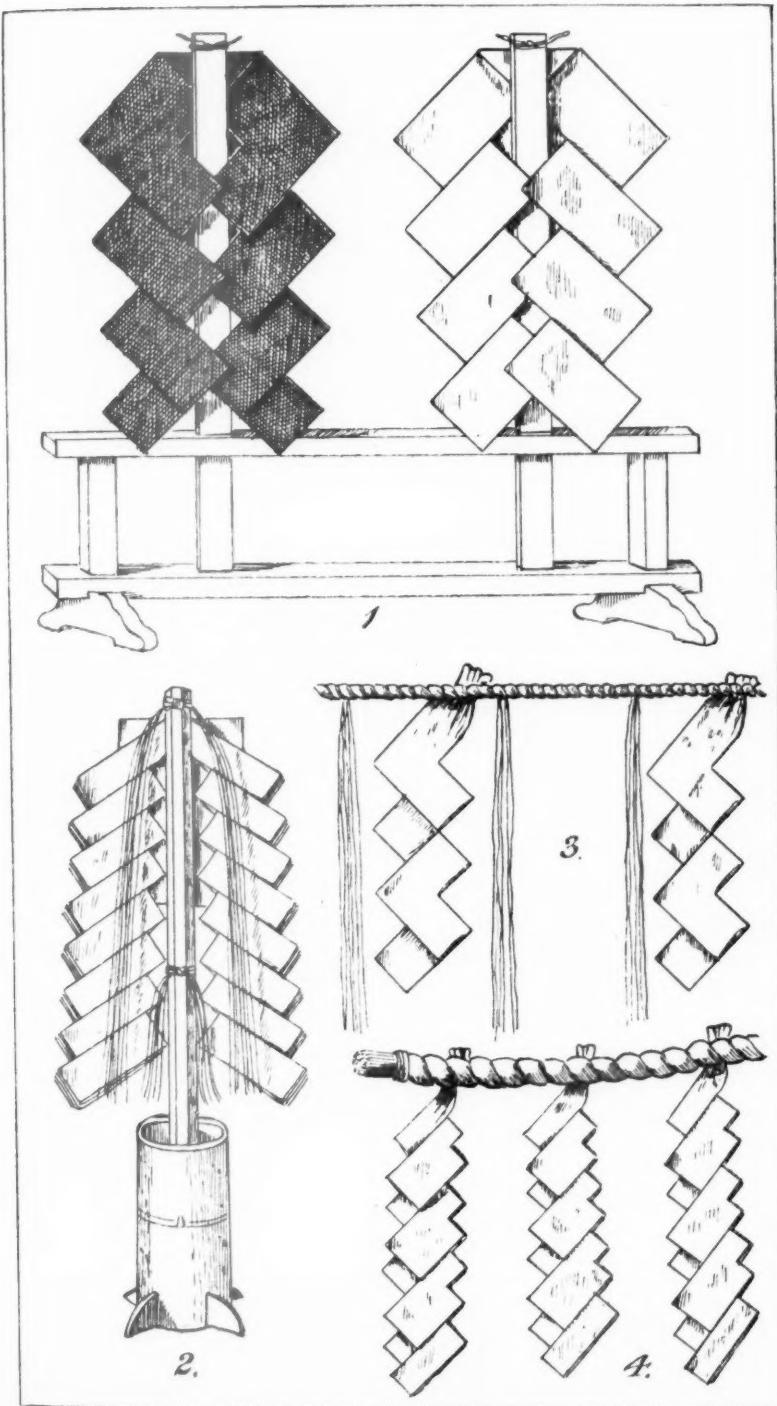
The very commentators of Shintō, patriotic as they are, and over anxious to magnify everything Japanese, at the expense of everything foreign, acknowledge that Shintō has no moral system, no body of views of any kind save worship of the gods, who were the ancestors of the Imperial House. Thus it was that Shintō collapsed utterly at the touch of Buddhism. Thus, too, is it that it fails to support itself now that an attempt has been made to revive it as a political factor. It has nothing in it that appeals to the religious instincts of the people.

#### *Description of Plate IV.*

Fig. 1. Fourfold *go-hei* on stand, placed before altar; cut by Kakinuma Hiromi, Priest at the shrine of Jeyau at Nikko (Yoshida sect).

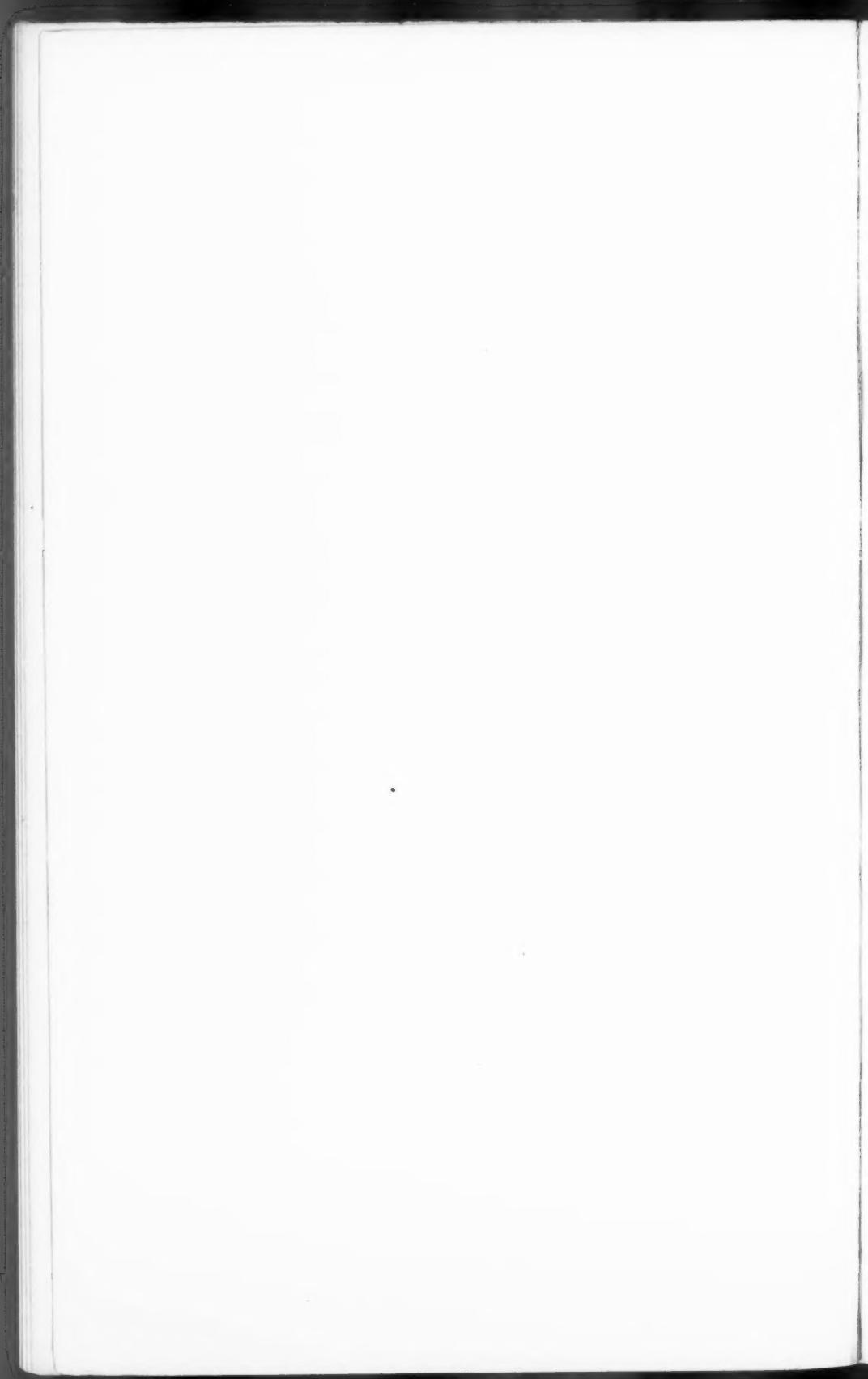
Fig. 2. Eightfold *go-hei* of Shirakawa sect.

Figs. 3 and 4. *Go-hei* for hanging in lines on a cord in front of temple, or of houses at New Year. The specimens figured in this plate have been presented to the Oxford Museum by B. H. Chamberlain, Esq., Tokyo.



A. ROBINSON.

JAPANESE GO-HEI.



## DISCUSSION.

Mr. F. V. DICKINS, as having long resided in Japan, and studied Japanese life and thought, desired to offer a few observations. Shintō as usually written—it was a Sinico-Japanese, not a Japanese term—meant the way of the gods, in Japanese *kami no michi*. But the Japanese expression was a translation of the Chinese one merely, and for their oldest form of religion they had no native name whatever. This was a typical fact. The more what was called Shintō was examined, the more it was found to be Chinese in character, like everything else appertaining to the life of old Japan. Of the early history of Japan we know nothing. There were no documents, historic or archaeological. It began with the introduction of Buddhism and Chinese writing. Before Buddhism Confucianism had, no doubt, made its way across the eastern seas, and with it more or less of the old religion of China. How much of this old religion was mixed up in the oldest form of Shintō it was difficult to say, or rather how much of Shintō was not a mere imitation of the imported faith. It was hard to pick out anything in Shintō that could not be found in ancient Chinese religion, except the details of ceremonies. There were three kinds of Shintō—the latest the sort of eclectic or eliminative Shintō of the Revivalists of a hundred years ago; the Buddhist Shintō of Kūkai (*kōtōdaishi*); and the oldest that of the Kojiki, the Monyōshū, and the Norito. Its only ethical aspect was the practice of purification—a development probably of bodily cleanliness which experience had shown to be profitable and pleasant. The worship was not so much of ancestors as of heroes—war or culture heroes. There were no sacrifices, which is peculiar; there were simply offerings to the gods. Among these were offerings of cloths of different kinds fastened to the twigs of a spray of Sakaki (*Cleyera japonica*). This conventionalised and regularised would easily develop into the *go-hei*, a Chinese expression signifying not paper at all, but august offerings (*hei=nigate*). *Nusa* were rods bearing a bunch of hempen fibre commemorating, doubtless, like the *go-hei*, a useful invention. The *yenso* of the Ainos was probably derived from these *nusa*, if not original, as they well may have been. A black *go-hei* Mr. Dickins had not seen before. Shintō could not be called a religion; its mythology even was inorganic, but it had nevertheless played a most important part in Japanese history. It had preserved the unity of the country through many perils by its apotheosis of the Mikado as direct descendant of the gods, and intermediary between them and the empire, a position which the Buddhists never assailed. The Buddhists, indeed, did not assail Shintō, but appropriated its Pantheon. Every Japanese was born a Shintōist as a sort of agnate of the local god, lived under any faith he liked, and was buried with Buddhist rites, thus conciliating both the gods and Buddha.

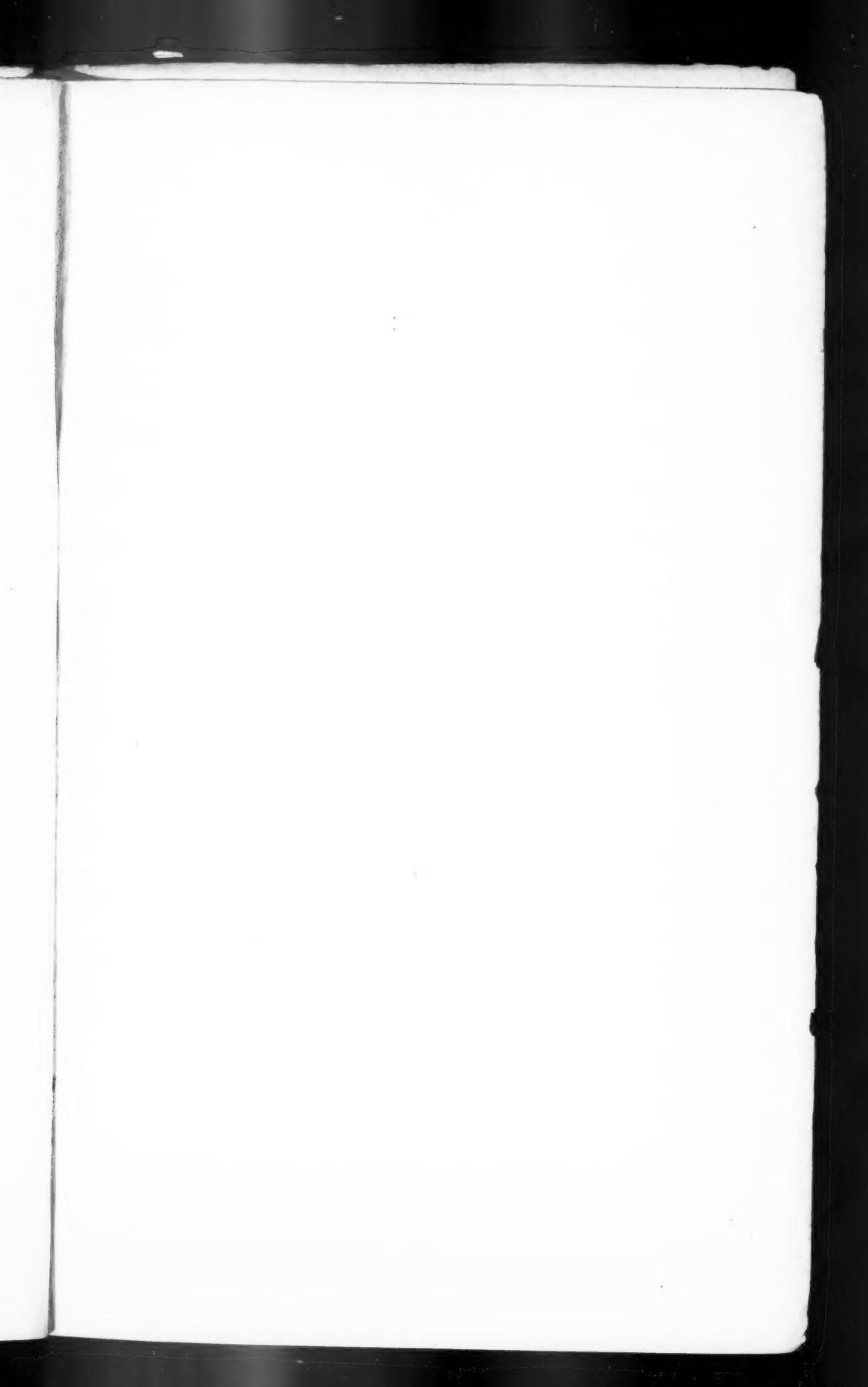
EXHIBITION OF ARROWS *from the SOLOMON ISLANDS.*

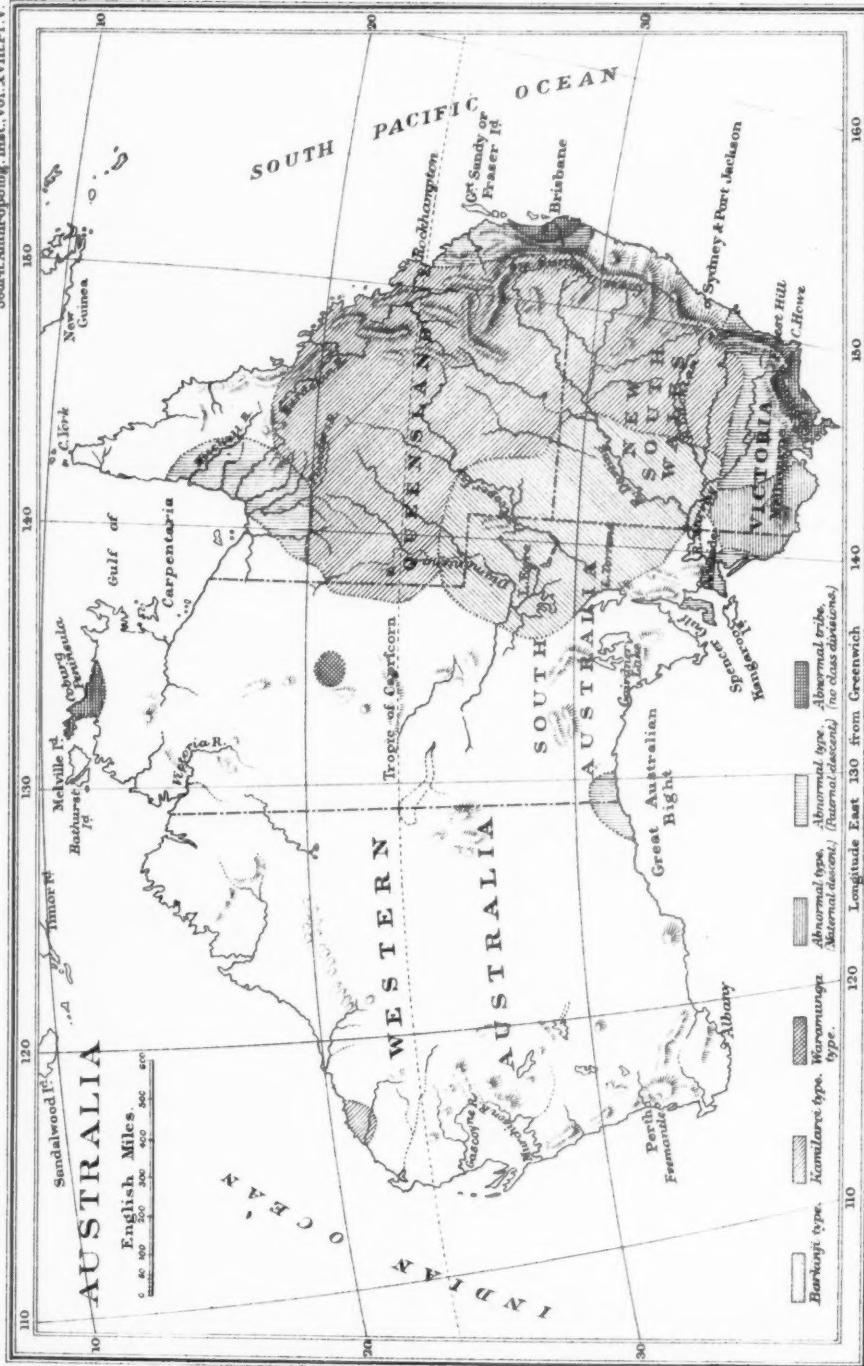
Mr. HENRY BALFOUR, M.A., exhibited a series of decorated shafts of arrows from the Solomon Islands, and explained his theory of the development of the patterns. These arrows were described in a paper published in the last number of this "Journal" (Vol. xvii, No. 4, page 328), and illustrated in Plate VII, Vol. xvii.

Dr. E. B. TYLOR remarked that Mr. Balfour seemed to him to have made out his case. The Pitt-Rivers Museum at Oxford, in the arrangement of which Mr. Balfour is now engaged under Prof. Moseley, has become the headquarters for investigation of the development of ornamental art from originally structural and representative figures. This line of enquiry has been for many years promoted by General Pitt-Rivers, as in his well-known arguments as to the passage in savage art of human figures into mere geometrical patterns, and of the representations of coiled cords into the mæanders and frets of classic decorative art.

Mr. G. M. ATKINSON did not agree with the theory propounded by Mr. Balfour. For it would be observed that all the implements exhibited had the heads mounted on what was the root end of the cane or bamboo. The roughness (node, scar, or cicatrix) would be no impediment to the flight of the arrow. Nos. 2 and 3 of the series of arrows exhibited and relied upon as evidence of the development had highly decorated heads: pigments were largely used without a trace of this simple primitive idea: and the ornamentation on No. 9, the most developed shaft, might as likely represent a string wound round. A series of such decorations could be obtained, or paralleled, from a series even of bronze celts. Like produces like, and people in the same stage of culture or art, will produce the same kind of ornaments. The process of smoothing down the scar may be a possible, but, to the speaker's mind, it was a very improbable theory; and, judging by the specimens of arrows exhibited, the Solomon Islanders consider the roughness no inconvenience to the hand when shooting, for they have not removed the scar; both scar and ornaments are on some of the shafts.

Mr. BALFOUR explained that as it was necessary to first draw the arrow back over the bow hand before discharging it, the roughness would prove unpleasant, and besides a trial shows that it is certainly an inconvenience in the discharging, as there is considerable rasping power even when the shaft passes root foremost over the hand. The decorated heads of some probably derive their very different style of ornamentation from a different source, and need not influence the development in a primitive manner of a pattern on the shaft. The fact of there existing on the same shaft both scar and pattern may indicate an unfinished shaft, or a carelessly finished one, and, as remarked in the paper, it is introduced on purpose into the series to emphasize the loss of connection at this stage between the paring of the nodes and the pattern derived from the process.





The following paper was read, on behalf of the Author, by Dr. E. B. Tylor:—

FURTHER NOTES ON THE AUSTRALIAN CLASS SYSTEMS.

By A. W. HOWITT, F.G.S., F.L.S., COR. MEMB. ANTHROP. INST.

[WITH PLATE V.]

*Introduction.*

In a former communication to the Anthropological Institute<sup>1</sup> I reviewed the different class systems which up to that time had come under my notice. I now propose to note some further particulars which are important as showing that the various class systems are regarded by the aborigines as being the equivalents of each other, as explaining more clearly the different types on which the various systems are constructed,<sup>2</sup> and finally as showing broadly the geographical range of the types. Some little light is also afforded by these additional particulars on the manner of growth and decay of the systems.

In order to make succeeding remarks as clear as possible to the reader, I have added hereto a sketch map, showing approximately the boundaries of the several types of system<sup>3</sup> (Pl. V.). These boundaries are necessarily only approximate, and will be liable to modification as further local details come in. But making full allowance for this, I do not anticipate that these alterations and additions will disturb the broad and important features which an inspection of the sketch map shows.

*Geographical Range of the Types of System.*

The information at my command enables me to cover a great part of the eastern half of the Continent, and there can be but little doubt that the western half, were it possible now to mark out the boundaries of the types of system obtaining over it, would show analogous results. Unfortunately I am not able to do this. Not because I have left the western half of the Continent outside my enquiries, but because those to whom I have written in Western South Australia, Western Australia, and the Northern Territory have remained deaf to my entreaties for information.

In the sketch map (Pl. V) I have marked out broadly the

<sup>1</sup> "Notes on the Australian Class Systems." "Journal Anthropol. Inst." May, 1883.

<sup>2</sup> See p. 41.

<sup>3</sup> I have at present no data to shew the extent of country covered by the Waramunga type.

boundaries of the various types of class system. It is not probable, as I have already stated, that further enquiries will make any material alteration in the broad features thus shown, although they may do so in lesser details. For instance, it is not yet quite certain whether all the aboriginal communities in the "Gulf Country" of Carpentaria have agnatic descent. As to this my enquiries are still continuing, as also for the purpose of filling in the blanks which will be found in the Cape York Peninsula and the coast of Eastern New South Wales.

Before mentioning the conclusions to which a study of the range of types of system has led me, it is necessary to make a few remarks about the country over which they are spread. In descending from the Great Dividing Range and its downs and plateaux in North-Eastern Queensland into the interior of the Continent, the country becomes more arid and the streams which flow inland combine to form the Diamantina and the Barcoo Rivers, two great watercourses, which at uncertain times pour deluges of water into the depressed interior.<sup>1</sup> These great floods, after spreading over an immense extent of country, finally remain and evaporate in a system of salt lakes, of which Lake Eyre is the largest example. Into these great saline depressions flows also the drainage from the north and from the west; and the country surrounding them, except after saturation by the floods, is more like a desert than anything I can liken it to. The native communities which are spread over this tract of country (or I should perhaps say were, for they are now practically exterminated), have the Barkinji type of system.<sup>2</sup> This type also extends southwards to the junction of the Darling and Murray Rivers, and in all probability further to the west and as far south as Port Lincoln, for I find that there also occur the two primary class names Máteri and Kárúrú which obtain in the Lake Eyre country. Whether this type extends further westward than is shown upon the sketch map is unknown to me and must be left for future enquiries to decide. Since, however, the physical character of the country west of the boundary which I have marked becomes more and more desert, I anticipate that it will not be found that the tribes are on a higher social level than those around Lake Eyre.

To the eastward of the boundary which I have marked for the Barkinji type, the country is better watered and has far greater food supply for an aboriginal population, until at the eastern coast the food supply reaches its maximum. I am now speaking

<sup>1</sup> While writing the above I observed the following in one of the local journals. "The country submerged is part of the delta of the Barcoo and Diamantina Rivers."

<sup>2</sup> See p. 41.

generally, and not with reference to isolated spots which might be picked out where the coast is barren. Over this better watered and provisioned country extends the Kamilaroi type of system with a range also along the northern watershed to the boundary of South Australia, and probably beyond it to the westward. It appears to touch the eastern coast line, and to follow it to about Rockhampton, where it leaves the coast and striking southwards along the coast range follows its general direction until at about the Hunter River, in New South Wales, it reaches its most southerly limit. Thence the boundary of the Kamilaroi type strikes westward to the junction of the Murrumbidgee and Murray Rivers, where it joins the south-eastern boundary of the Barkinji type.

Thus the true Kamilaroi organisation with small variations, mainly in dialectic forms of the class names, spreads over an area in Eastern Australia at the very least 1,000 miles north and south by 500 miles east and west.<sup>1</sup>

This area comprises some of the best watered and most fertile tracts, exclusive of the rich lands of the coast line.

The limits of the still more developed type which I have provisionally called the Waramunga, I am at present unable to define, as that tribe is so far the only instance which I have recorded.<sup>2</sup>

With the exception of that part of North-Eastern Queensland where the Kamilaroi type touches the coast, the whole of the coast tracts, speaking broadly, between the Great Dividing Range and the sea, both in Queensland and New South Wales, and between the Murray River and the sea in Victoria and South Australia, were occupied by communities having abnormal types of class system which in most cases count descent through the male line. These coast tracts, taken as a whole, are the best watered and the most fertile parts of Australia, and moreover, the richest in animals and plant food for an aboriginal population.

This coincidence of advanced social development with fertility of country is not without some significance. The most backward-standing types of social organisation, having descent through the mother and an archaic communal marriage, exist in the dry and desert country; the more developed Kamilaroi type, having descent through the mother, but a general absence of the Pirauru marriage practice<sup>3</sup> is found in the better watered tracts

<sup>1</sup> The organisation is also found in Western Australia, see "Kamilaroi and Kurnai," p. 36.

<sup>2</sup> See p. 43.

<sup>3</sup> I have discussed the Pirauru practice at some length in a memoir communicated to the Anthropological Society of Washington, D.C., U.S.A. and em-

which are the sources of all the great rivers of East Australia; while the most developed types having individual marriage and in which, in almost all cases, descent is counted through the father, are found along the coasts where there is the most permanent supply of water and most food.

In fact it is thus suggested that the social advance of the Australian aborigines has been connected with, if not mainly due to, a more plentiful supply of food in better watered districts. Still a difficulty suggests itself to this view, because, given the existence of group marriage such as that of the Dieri tribe, one might reasonably expect that this practice of Pirauru would have been rather perpetuated than abandoned under conditions of environment which permitted the Pirauru group to remain together on one spot instead of being compelled by the exigencies of existence to separate into lesser groups having the Noa marriage. This will certainly require careful consideration, but also it must be borne in mind that the origin of individual marriage, the change of the line of descent, and the final decay of the old class organisation are all parts of the same process of social development, and that not one cause only has been at work but a number of causes which have worked together towards that ultimate result which can be seen in the most advanced communities.

I do not attempt to explain this course of development now, but only desire to draw attention to the interesting conclusion arising from an inspection of the geographical range of the types, namely, that their development has apparently a connection with improved physical surroundings. My argument

bodied in the Smithsonian Report for 1883 to which I may refer, but I think it may assist the reader hereof if I extract the following particulars: "The various Piraurus are allotted to each other by the great council of the tribe (Dieri), after which their names are formally announced to the assembled people on the evening of the ceremony of circumcision, during which there is for a time a general license permitted between all those who have been thus allotted to each other. Each Dieri man or woman is the Pirauru of some other Dieri woman or man. The relation of Pirauru may exist between men and women of different local groups or of different tribes. The relation of Pirauru may not exist between a person and those who stand to him or her in one of the following relations: father, father's brother, father's sister, mother, mother's sister, mother's brother, brother's child, sister's child, brother, sister, or any of these whom we call cousins, either on the father's or on the mother's side. Nor may it exist between persons of the same totem. The Piraurus being allotted to each other at each great council previous to the ceremony of circumcision, a man or a woman being already Pirauru, may thus acquire a new Pirauru relation in addition to these previously acquired. Hence in time a man may come to have several Piraurus. As the Piraurus cannot be of the same class name, we have here a number of men belonging to one class married collectively to a number of women of the other class. This is, in fact, a form of group marriage, and it accounts for the so-called polyandry of the Nairs." See "Studies in Ancient History," by Dr. F. McLennan, new edition, p. 100.

requires that the Barkinji type was once universal in Eastern Australia, and that the other types have been gradually developed from it.

*The Classes are the Equivalents of each other.*

In comparing the class divisions and totems of any great group of allied tribes, such as that comprised in the term "Kamilaroi," one finds that each component tribe has some more or less marked difference or variation either in the names of the sub-classes or in the character or number of totems. These differences are often mere dialectic variations in names, but in other cases they amount to actual differences in the structure of the system or in the animals which constitute the totem groups. When a still larger aggregate of tribes is examined the variations become larger and the differences wider. Nevertheless the general identity of structure and of the fundamental laws of the classes over wide areas, proves beyond doubt that these varying forms are substantially equivalents. I have endeavoured to put this assertion to the proof, and the result has been that the absolute identity and equivalence of the fundamental "primary classes" has been established beyond doubt in tribes along a line extending from south to north across the Australian Continent, from Mount Gambier on its southern shores to the Gulf of Carpentaria, in Northern Queensland. Similar identification embraces tribes westward from Brisbane on the east coast far into the colony of South Australia.<sup>1</sup>

This much having been done very little doubt can remain that further enquiries will establish the same equivalence throughout the whole of Australia.

In this connection I may note that the boundaries of any one class system are usually wider than those of a single tribe, and that the boundaries of a "type" of system have a still wider extent, and include aggregates of tribes which may well be termed nations, for they are bound together by a community of classes which indicates a community of descent, and which is usually accompanied by more or less frequent intermarriage.

In the following table I have shown some of the systems which are each others' equivalents. I have taken the primary divisions for comparison and in some instances also the sub-classes, while omitting for the present the totem groups, which are not essential to my purpose, and which would be of use

<sup>1</sup> I feel the strongest conviction that future investigations will shew that the equivalence of the class systems extends to Western Australia, in other words, to the whole of Australia. The four intermarrying classes have been recorded, for instance, in Western Australia by Grey and other travellers, and also by correspondents of Mr. Fison and myself.

mainly to determine some doubtful cases of equivalence. I shall separately discuss them.

In order to bring the question of equivalence within the shortest range of view, I have abbreviated the connected chain by taking those which are most typical. It must not be supposed that the tribes quoted touch each other, for some of them are hundreds of miles apart. It is the class systems which touch, and the tribes quoted are good examples of the particular social organisation to which they respectively belong.

In the table the chain apparently ends at the Belyando River, in Queensland. The fact really is that this class system is found to extend to the headwaters of the Flinders River in a slightly varied form of names as given by Mr. Edward Palmer, in his valuable paper on the Gulf Tribes.<sup>1</sup> The four-class system, of which that at the Belyando River is an example, ceases at the Maikolon tribe, which is the first tribe on the Cloncurry River having a peculiar set of class divisions composed of four male and four female names, which thence obtain to the shores of the Gulf of Carpentaria. When, however, one considers that the only difference in the two systems is that the female name with the Maikolon is distinct from the male name, that is to say, that the brother and sister have different names, while with the Belyando tribe the sister's name is formed by the addition of a feminine affix to the name of the brother, in accordance with the common usage of the Kamilaroi type, one might expect that, the laws of marriage and descent being the same, the equivalence of the two systems would be recognized where the two having the respective systems touch and intermarry. This equivalence has, however, not yet been worked out, but when it is the one link will be supplied which is required to connect the chain of equivalent systems from Mount Gambier to the Mitchell River in the extreme of Northern Queensland, a distance of over 1,600 miles in a straight line.

In some border tribes I find that the people claim the equivalent classes of each tribe, that is to say, the classes peculiar to the group to which their own tribe belongs, and also those which are equivalent to them in the adjoining tribe. For instance in the Wotjoballük tribe of the Lower Wimmera River in Victoria, a man who is Krókitch-Wártwüt in that tribe<sup>2</sup> told me that when he went across to the Maráura tribe at the junction of the Murray and Darling Rivers he was Kilpara, and that Gámütcz is the same as Mókwara. In the tribe which inhabited the country around Warrambool, in Victoria, the Kroki class is the

<sup>1</sup> "Notes on some Australian Tribes," by E. Palmer. "Journ. Anthropol. Inst.", February, 1884.

<sup>2</sup> See p. 63.

equivalent of Bunjil and Kumit of Waa, these being the class names of tribes which were spread over a wide extent of Eastern Victoria, excepting Gippsland.<sup>1</sup>

On the Maranoa River in Southern Queensland "a Hipai man is also Urgila, and thus calls himself Hipai Urgila, and so on with the other names."<sup>2</sup> In Southern Queensland, but to the north eastward of the Maranoa "the Ungori class names are on the one side the equivalents of the class names Hipai, Kombo, &c., and on the other side of those of the Emon tribe, namely, Urgila, Anbeir, &c."<sup>3</sup>

No doubt whatever remains in my mind that the same primary class divisions are not only identical over vast areas, and include numerous tribes and diverse dialects, but that also wherever two systems of classes touch each other the members of the adjoining tribes invariably know which of the neighbouring classes is the equivalent of their own, and therefore the individual well knows with which class his own has connubium, and he knows also, though perhaps not quite so clearly, the marriage relations of the other classes and their lesser divisions.

Two interesting questions arise from an inspection of the annexed table. The first is how marriages are arranged between, for instance, a totem of Kilpara (Example No. 3) and a totem of Ipai or of Kumbo (Example No. 4) and how the question of descent is settled in such a case. The second question is how descent is settled in marriages between Nos. 4, 5, and 6, for Nos. 4 and 6 have descent through the mother, while in No. 5 it runs through the male line. Probably in such cases the explanation will be found to be that as the woman goes to her husband's tribe her children follow the line of descent it counts by in the case of the totem or class which is equivalent to hers.<sup>4</sup>

#### *The Primary Class Divisions were once Totems.*

I have elsewhere assumed that the class systems as we now find them are the results of a process of development by which the primary social divisions were sub-divided.<sup>5</sup> This does not attempt to explain why it is that the primary class divisions have names, which, in certain cases have no other meaning as words, while in other cases they are clearly the analogues of the totems or apparently their prototypes.

<sup>1</sup> See p. 64. Information furnished by Mr. A. L. P. Cameron.

<sup>2</sup> Information furnished by Mr. Lethbridge of Forest Vale.

<sup>3</sup> Information furnished by Mr. James Lalor, M.A., of Roma.

<sup>4</sup> The three-class systems here spoken of as equivalents are Nos. 4, 5, 6, in Table A.

<sup>5</sup> "Notes on the Australian Class Systems." "Journ. Anthropol. Inst.", May, 1883.

TABLE A.

TABLE SHOWING THE EQUIVALENCE OF THE PRIMARY CLASS DIVISIONS.<sup>1</sup>

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
Buandik ..	Wotjoballuk ..	Barkinji ..	Kamilaroi ..	Kaiabara ..	Wakelbura ..
Mount Gambier, S.A.	Wimmera River, V.	Darling River, N.S.W.	Gwydir River, N.S.W.	Bunya Mountains, Q.	Belyando River, Q.
Kroki ..	Krokitch ..	Kilpara ..	Kupathin { Ipaï Kumbo }	Kupatine { Bulgoïn Bunda }	Malers { Kurria Banoe }
Kumit ..	Gamutch ..	Makwara ..	Muri { Kubi }	Dilebi { Barang Turovain }	Wuthera { Wungo Obu }

<sup>1</sup> In this might be added Bunjil = Kroki, and Waa = Kumit, according to Mr. A. L. P. Cameron; Nos. 1, 2, 3 identified by personal enquiries by myself. No. 4 identified by Mr. Cyrus Doyle, late of Kunopia, N.S.W. No. 5 by Mr. Joelyn Brooke, Sub-Inspector of Native Police, Queensland. No. 6 by Mr. J. C. Muirhead, of Elgin Downs, Queensland. The equivalence of Nos. 4, 5, and 6 has also been determined by Mr. James Lalor, M.L.A., of Kubberamunds, in Southern Queensland.

It might be reasonably expected that if the class systems have been subject to a process of development extending necessarily over great periods of time the changes which language underwent should leave some traces in the names of the classes, which would be likely to remain long after the language had altered. They might be perpetuated as names not having any meaning apart from the classes. This seems to me to be indicated by the fact that over a large part of Eastern Australia the names of the primary classes and sub-classes are the same under slight variations, whereas the languages of the tribes using them are more or less divergent, and often so much so as to be unintelligible to any but the tribe to which the language belongs, or to the few linguists who are found in each tribe.

In a large area of country wherein the four sub-classes are not found, the primary classes have names which convey a meaning as words independently of their signification as class names. They are in fact in such cases totems which each apply to one moiety of the tribe. Along the Darling River, up the Murray River over a large part of Eastern Victoria, and through Maneroo, in New South Wales, the meaning of the two primary class names is almost everywhere Eaglehawk and Crow. In some instances the names are the words for those birds, whilst in others there are synonyms which are more frequently used in speaking of these birds.

If the supposition is correct that in the primary divisions we may recognize the oldest forms, and in the four subdivisions somewhat newer forms of totems, it should be found that these earlier divisions show signs of antiquity as compared with the totems which are, according to this hypothesis, the nearest to the present time. This, I think, is the case. The totems are in all cases words forming part of the living language of the tribe divided by them. They are also invariably natural objects found in the tribal country, and could not in some cases have been brought as totems by the people when migrating in the past from some distant part of the Australian Continent where such animals do not occur.<sup>1</sup> In such migrations, which must have taken place since totems have been used, certain of them must have suffered by disuse, or substitution by the absence in the new country of objects to which the names belonged. The totem name would be either lost altogether or some representative animal would be substituted.

In the case of a primary or secondary division the totem name might continue to exist as a name merely, as for instance,

<sup>1</sup> Of course such totems as fire, water, rain, wind, the heavenly bodies, &c., are not included in my remarks.

the names Dilbi and Kupathin, Krokitch and Gamutch, Malera and Wuthera.

The class name is general, the totem name is in one sense individual, for it is certainly nearer to the individual than the name of the moiety of the community to which he belongs. The more proximate names would certainly be the most easily modified, the more distant names would be those most easily lost, or else would linger on unchanged.<sup>1</sup>

In all these cases, however, it is necessary to bear in mind that much would depend upon the line of descent when such changes took place. I have observed that changes in the class systems from the normal type are always far more apparent where there is agnatic descent. Where this comes in the old equilibrium seems to be profoundly disturbed. The primary class divisions may be lost (Narrinyeri) or the totems may have almost disappeared (Woiworung) or both may be wanting, leaving only the abnormal totems the "man's brother" and the "woman's sister" (Kurnai),<sup>2</sup> or finally the whole class system may have disappeared (Coast Murring and Chepara).

Agnation is clearly connected with these later changes, but some other cause must be sought for these earlier changes which divided and again sub-divided the community under the law of descent through the mother. At present I cannot see any more reasonable cause than a profound feeling in the aborigines against close intermarriage, or as they put it, against "mixing the same blood."

This feeling is a very strong and living one in the Australian savage. No one will be prepared to contend that it is an innate one. It has been arrived at by their ancestors through a course of reasoning which has satisfied them. Anthropologists will have to modify their views as to the reasoning powers of savages. They do reason, and granting their premises, their conclusions are strictly logical and correct. Those who have had much to do with savages, and have got into their confidence

<sup>1</sup> I have at present no evidence bearing directly on the change of totem name, but I am indebted to Mr. J. C. Muirhead for a case in which the tribal (local) name has been changed. He says in speaking of a tribe now called "Munki-bura," which was located at Natal Downs and at the Cape River, "I am not able to state how this tribe came by its name or how the word Munki came to mean sheep, but the following instance of an alteration in a tribal name may illustrate the way in which such changes come about. There is at present a tribe living about 60 miles south of Clermont having the name Wandali-bura. It was formerly called Düring-bura when inhabiting Gregory Creek. For some reason it discarded this place, probably because a Native Police barracks was formed there, and is now called Wandali-bura from Wandali, = to loose, or to abandon or throw away. At one time the Wakelbura (Wakel = eels) tribe was called Orbül-bura, from *orbul*, a tuber found at the root of a small water lily."

<sup>2</sup> See page 50.

find that they are perfectly capable of reasoning within the limits of their experience.

I think, therefore, that there is reason for believing that originally the primary class divisions were in fact totems, and it might be well to abandon the terms "class divisions" and "sub-classes," and, as suggested to me by Mr. Fison, to adopt instead the terms "major" and "minor totem."

*The Types under which the Class Systems may be arranged.*

In a former communication I suggested certain formal delineations of the class systems. I have found these delineations so very useful in working out the new details which have from time to time come into my hands, that I propose to follow out the same plan in this paper also. The formulas, if I may be permitted to use that term, are very helpful in bringing into view the similarities and the differences of the systems, and thus also to enable one to mark what seems to have been the process of development. Thus working, the arrangement of the various class systems falls naturally under several "types," and for simplicity I omit in them the totem groups in each. A reference to the map (Pl. V) will aid the reader in following my statements in this section.

*The Barkinji Type* includes all those systems which have two primary classes and a group of totems belonging to each, and with descent counted in the female line. Abbreviating the tabulated statement of the system<sup>1</sup> it will be graphically formulated as having a community consisting of

A + B,

<sup>1</sup> As a good example of this type of class system, I give the following which extends over the Darling River from Menindie to Fort Bourke. I have given the totems in their English as well as aboriginal forms:—

Primary Classes.	Totem.
Mükwara     ...     ...     ...     ...     ...	Bilyara—Eaglehawk. Túrlta—Kangaroo. Bürkünia—Bandicoot. Ülebüri—Duck. Karni—Lizard. Külthi—Emu. Turu—Carpet snake. Namba—Bone fish. Birnal—Iguana. Bauanya—Paddy melon. Yerilpari—Opossum.
Kilpara     ...     ...     ...     ...     ...	

where A and B represent respectively the two exogamous intermarrying moieties of the tribe.

In the Barkinji tribe, and in others which extend over a vast space of inland Australia, there is descent through the mother.

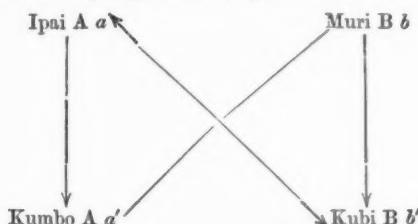
*The Kamilaroi Type.*—In a former memoir I have given reasons for believing the class systems of tribes which have the "Kamilaroi organisation" to be a development of the simpler forms of the Barkinji type. The Kamilaroi type of system may be shortly described as one in which a community divides into two primary classes, with four sub-classes, and with groups of totems corresponding to them. Descent in this type is generally in the female line. There are, however, exceptions which have descent counted through the father, and which are of sufficient range to form a separate type.

For an example of the Kamilaroi type of system I may refer the reader to previous papers.<sup>1</sup> The Kamilaroi type can be shown graphically by the subjoined formula.

$$A \left\{ \begin{matrix} a \\ a' \end{matrix} \right. + B \left\{ \begin{matrix} b \\ b' \end{matrix} \right.$$

While in the Barkinji type the descent runs direct in the female line through the class names, it appears in the Kamilaroi type, when one merely regards the names of the sub-classes, not to run in the direct line. Yet when the two diagrams of the descents are compared the principle underlying both is found to be the same.

I have found the subjoined diagram very useful in bringing before the mind's eye in a concise form the rules of marriage and descent in the Kamilaroi type of system. I give it in full for the four classes with the letters attached corresponding to the names as used in the condensed formula of this type. The arrows point to the direction in which the marriages and descents run in the one case used in the diagram, namely that of the two intermarrying classes, Ipai and Kubi.



<sup>1</sup> "Notes on the Australian Class Systems," "Journ. Anthropol. Inst.", May, 1883; "Notes on some Australian Tribes," E. Palmer, "Journ. Anthropol. Inst.", February, 1884.

Discarding the names and using the letters only, the subjoined diagram of the marriage of Ipaï with Kubitha, and the corresponding descent can be compared with the marriage and descent in the Barkinji classes which are their equivalents.

Barkinji.	Kamilaroi.
$m \quad A$	$m \quad A \alpha$
$f \quad B$	$f \quad B \beta'$
$m \text{ and } f \perp B$	$m \text{ and } f \perp B \beta$
&c.	&c.

The line of descent in both runs in the same manner through the female line in the primary classes, but where the sub-classes are developed, it runs through that sub-class which with the sub-class of the mother represents her primary class division. The new arrangement is an ingenious restriction upon marriage, thus forbidding one half of the intermarrying class in its female members to any individual man, and moreover in thus removing a moiety it removes at the same time the man's daughter, who otherwise would be of that class from which he could lawfully take a wife. It removes from the possibility of marriage with him all those women who under the "group relationship" system must be counted as his daughters.

*The Waramunga Type.*<sup>1</sup>—Another most peculiar and interesting class system has come under my notice. The community is divided into eight intermarrying classes. That is to say, into four times the number of those of the Barkinji, and twice those of the Kamilaroi type. As this type of class system is a new one to me, and as much interest attaches to it, I shall enter upon some fuller details, showing how the eight class names are related to each other. I have to thank Mr. Fison for most valuable aid in working out this system from the data furnished by Mr. Giles.

The information given by Mr. Giles does not disclose anything showing that there are any other class divisions beyond the eight to be mentioned, or that there are any totems attached to them. This, however, does not in any degree prove them absent, but only perhaps that they have been overlooked. The fact that the existence of the primary class names Dilbi and Kupathin escaped the notice of many of our correspondents is an instance enforcing extreme caution in drawing conclusions from negative evidence.

<sup>1</sup> Obligingly communicated by Mr. Allan M. Giles, of Tenant's Creek, S.A.

The Waramunga class names are as follows:—

<i>Male.</i>	<i>Female.</i>
Akamara.	Nakamara.
Ampajona.	Tampajona.
Ungerai.	Namajili.
Apononga.	Napononga.
Opala.	Narila.
Tungeli.	Nungeli.
Kabaji.	Kabaji.
Apongardi.	Napongardi.

That is to say, the sister of Akamara is Nakamara, of Ampajona is Tampajona, and so on with the other names, excepting Ungerai.

The first matter to be disposed of is how the above eight male and eight female classes are to be placed with each other under the Waramunga laws of marriage and descent.

As to this, Mr. Giles gives full information which I have tabulated as follows, assuming that descent is in the female line, as is most frequently the case in Australian tribes.

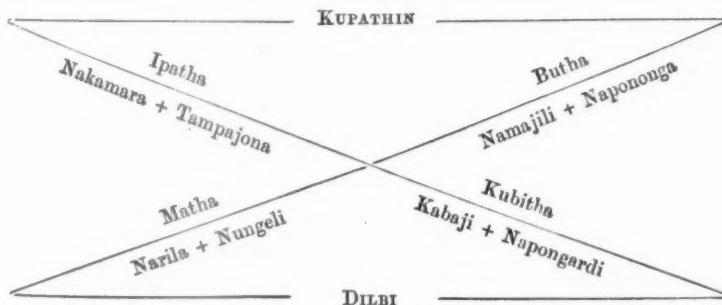
Female	Marries	Children are
Nakamara .. ..	Kabaji .. ..	Ungerai and Namajili.
Tampajona .. ..	Apongardi .. ..	Apononga and Napononga.
Namajili .. ..	Opala .. ..	Ampajona and Tampajona.
Napononga .. ..	Tungeli .. ..	Akamara and Nakamara.
Narila .. ..	Ungerai .. ..	Apongardi and Napongardi.
Nungeli .. ..	Apononga .. ..	Kabaji and Kabaji.
Kabaji .. ..	Akamara .. ..	Opala and Narila.
Napongardi .. ..	Ampajona .. ..	Tungeli and Nungeli.

The arrangement of the above in two groups, A and B, can be now deduced from this table, on the assumption that they are sub-divisions of two primary groups. I discard the male names, and take the female names as representing the classes. I commence with Nakamara A, who marries Kabaji; therefore Kabaji is of the class B, and their child Namajili is of the class A. Namajili A marries Opala, who is therefore B, and their child Tampajona is A also; Tampajona A marries Apon-

gardī B, and their child Napononga is A. Finally Napononga A marries Tungeli B, and their child is Nakamara A, being the name from which we started. Here, therefore, we have the following tabulated arrangement, which shows the eight intermarrying classes in two groups, and they also fall into couplets as follows:—

A	{	1 Nakamara.	B	{	3 Narila.
	i	Tampajona.		iii	Nungeli.
	{	2 Namajili		{	4 Kabaji.
	ii	Napononga.		iv	Napongardi.

This arrangement is based upon the fact that, for instance, Namajili is the child of Nakamara, but Nakamara is not the child of Namajili, as would be the case were we treating of two sub-classes of the Kamilaroi type, but is the child of Napononga. The explanation is that Nakamara + Tampajona are equivalent to one of the four sub-classes of the Kamilaroi type. For the sake of illustration this may be assumed to be Ipatha. For in a discussion of the principles underlying these systems the equivalent names are of little moment so long as the relative positions of the several names are preserved. It is immaterial whether we assume Krokitch = Kilpara or to Mokwara so long as we treat the names as merely expressing the rule that the class A marries B and *vice versa*. On the above assumption that Ipatha may be taken as representing Nakamara + Tampajona, the following diagram may be drawn out, which at a glance discloses the relation of the Waramunga classes to those of the Kamilaroi and Barkinji types.<sup>1</sup>



<sup>1</sup> I desire distinctly to say that at present I have no knowledge which of the Waramunga couplets = Ipatha. The future may bring information to connect the Waramunga with some other system whose value is determined.

Under female descent the individual reappears in the Barkinji type of system in each generation, and in the Kamilaroi type in the third generation.

The above tables make it now possible to ascertain what the results would be in an inquiry to ascertain the reappearance of the individual class name in the Waramunga type. It is immaterial which name is selected as all work alike. I take that first to hand, namely, Nakamara, and I discard the names, and, for the sake of simplicity use only the letters and numbers attached to the formal table, premising that, as before,  $m$ =male and  $f$ =female.

$f$	A	1
$m$	B	4
$m$ and $f$	A	2
$m$	B	3
$m$ and $f$	A	i
$m$	B	iv
$m$ and $f$	A	ii
$m$	B	iii
$m$ and $f$	A	1
		&c.

The individual class name  $f$  A 1 (Nakamara) only returns therefore in the fifth generation.

The Waramunga class system seems to me to add very great weight to my former argument that the extension of the class system into the Kamilaroi type was intentional, and not the possible result of accident, but for the object of preventing those intermarriages which the aborigines still regard as incestuous.

#### *Abnormal Types with Descent through the Mother.*

There were once tribes spread over the greater part of Western Victoria; indeed probably also over the adjacent districts of South Australia along the coast to the River Murray mouth, which had a social organisation of a peculiar type.<sup>1</sup> So far as I have been able to collect data, the various tribes referred to were not all upon the same level as regards their class systems. In some it seems to have been more complete than in others.

<sup>1</sup> See p. 60.

The difficulty of the inquiry is increased by the decadence of these tribes. Some of them have completely died out while others are represented by miserable remnants.

I find the Wótjobalük tribe of the Wimmera River to be the best example of this peculiar type.

This tribe occupied a tract of country on the eastern side of the Wimmera River, and extending northwards to the furthest limit of the flood waters beyond Lake Albacutya. According to my informants its class system was the same as that which extended over other tribes located in the country from the Avoca River, westward far into South Australia towards the Lower Murray, and from the limits of the Wotjobaluk country southwards to the sea-coast. It is certain that the northern limits of this system of class names was about the Murray River, where the names Kilpara and Mokwara obtained, and to the east where the class names Bunjl and Waa were found.

I have given a detailed account of the class divisions and totems, and therefore need only now refer the reader to it, and to say further that they can be delineated by the subjoined formula, which shows the resemblance and the difference to the normal types.

$$A \left\{ \begin{array}{l} a \\ a' \\ a'' \end{array} \right. + B \left\{ \begin{array}{l} b \\ b' \\ b'' \end{array} \right.$$

In this type, therefore, there have been developed six subclasses instead of the four of the Kamilaroi, or the eight of the Waramunga, but there has not been attached to them the peculiar alternating descents, which is their characteristic. It seems open to conjecture that in this form we may see only the Barkinji type with totems in a highly developed form. I shall have occasion to refer to this in a subsequent section.

#### *Systems counting Descent in the Male Line.*

All the tribes of which I have so far spoken in this section count descent in the female line. There yet remain, however, other tribes which count it through the male line. As before, I commence with that type which is the simplest.

A class system having two primary divisions only with totem sub-divisions obtained over a large part of Eastern Victoria (excluding Gippsland) and is best known to me in the form in which it occurred in the country north and south of the Yarra River, with the Woiworung tribe. The two primary intermarrying divisions were Eaglehawk (Bunjl) and Crow (Waa) and there was one totem attached to the Crow division. Descent

was counted through the father, for the children of a Bunjal man and of a Waa woman were Bunjal, and of a Waa man and of a Bunjal woman were Waa. A marked distinction between this and the Barkinji system, which it otherwise resembled, excepting in the line of descent, was that the two major totems were collected into certain localities, thus forming "local totem clans," while with the Barkinji system the members of the two class divisions were scattered throughout the whole tribal territory, members of each division, and of course also of the totems, being formed in the several local tribal groups. In the Woiworung tribe, on the contrary, in certain localities all the men and the children were Bunjal, the wives being Waa, whilst in certain other localities the reverse was the case. There is in this a remarkable instance of a profound alteration in the social arrangements connected with the change in the line of descent, for it is evident that this class system is an altered and partly decayed form of the Barkinji type.<sup>1</sup> The class system of the Murring of the Maneroo tableland was of this type but with less departure from the Barkinji form. It had two primary class divisions, Eaglehawk (*Mérüng*) and Crow (*Yuckembrük*), each with a numerous group of totems. Descent was counted in the male line and the child took the class and totem name of its father.<sup>2</sup> The members of the two classes were not aggregated into local totem clans, as with the Woiworung, but were as with the Barkinji distributed throughout the tribal territory.

The Murring of the coast line had, however, with male descent lost the class divisions, and the totems only survived as magical names which were transmitted from father to son.<sup>3</sup>

Examples of class systems framed after the Kamilaroi type, but with male descent, are found in tribes over a considerable range of country in South-Eastern Queensland. Of these the Kaiabara tribe of the Bunya Bunya Mountains is a good example. I subjoin the tabulated system so far as it has yet been worked out.<sup>4</sup>

<sup>1</sup> "On the Migrations of the Kurnai Ancestors," "Journ. Anthropol. Inst.," May, 1886.

<sup>2</sup> In "Australian Ceremonies of Initiation," p. 7, "Journ. Anthropol. Inst.," May, 1884, I stated that the Ngaryo class divisions had uterine descent. This was erroneous, as I afterwards observed.

<sup>3</sup> Yet traces of the old law survive. No person may marry another of the same name.

<sup>4</sup> From data kindly furnished by Mr. Jocelyn Brooke, Sub-Inspector of Native Mounted Police, Queensland.

## KAIBARA CLASS SYSTEM.

Primary Divisions.	Sub-classes.	Totems.
Kubatine .. .. ..	Bulkoin .. .. ..	Carpet snake.
	Bunda .. .. ..	Native cat.
		Flood water.
Dilebi .. .. ..	Baring .. .. ..	Turtle.
	Turowain .. .. ..	Bat.
		Lightning.

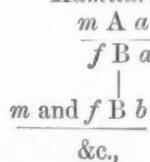
An inspection of this table shows no difference from the normal Kamilaroi type excepting in the names of the sub-classes and of the totems.

It is only when one examines critically the rules which govern marriages and descents that the distinctions come into view. To show this I now give a tabular view of the marriages and descents.

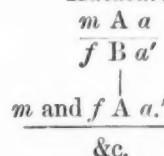
Male	Marries	Children are
Bulkoin .. .. ..	Turowain .. .. ..	Bunda.
Bunda .. .. ..	Baring .. .. ..	Bulkoin.
Baring .. .. ..	Bunda .. .. ..	Turowain.
Turowain .. .. ..	Bulkoin .. .. ..	Baring.

Using the same formula for this system as for that of the Kamilaroi type, but under the rules to be deduced from the above table, the subjoined diagram of the marriages and descents can be drawn out, and for comparison I have added that illustrating the Kamilaroi system.

## Kamilaroi.



## Kaibara.



From these diagrams it is clear that with the Kaiabara descent is in the male line, for the children are of the same primary division as their father, and of that sub-division which, with his own, is equal to the primary division. In the Kamilaroi type the children belong to the primary division of their mother and to the sister sub-class of that to which she belongs. I think that we may safely assume that the Kaiabara system is a development of that of the Kamilaroi type which surrounds it on the north-west and south, and of which it is the recognised equivalent.

#### *Abnormal Tribes with Agnatic Descent.*

Besides the tribes which I have now mentioned, and which have complete class systems, or traces of class systems, there are others which so far as can yet be made out have no class systems or totems. An instance occurs on the southern coast of Queensland in the Chipara tribe. Careful enquiries by a competent correspondent in that district<sup>1</sup> seem to establish the fact that this tribe had neither class names nor totems, for the aboriginal informant upon whom my correspondent chiefly relied was acquainted with the Kamilaroi class names, and distinctly stated that in his own tribe there were none such. This seems also to be further confirmed by the statements of another correspondent<sup>2</sup> on the same coast line but somewhat further to the northward, who informs me that he knew of no such class names as those which obtain to the westward excepting in the case of a few individuals who bore them as personal names. This suggests that in these two tribes (Chipara and Turibul) the class systems had become extinct; just as the class system of the Kurnai had become extinct, and as that of the Coast Murring had also almost disappeared. It is remarkable that all these are instances of coast tribes.

The occurrence of individuals bearing class names in a tribe which did not have them as class names, is paralleled by the occurrence of a family having the name of Bunjil on the eastern side of the Bidneli country in Eastern Gippsland, where this class name was otherwise unknown.

As a contribution to this part of the subject I have much

<sup>1</sup> Mr. James Gibson, J.P., of Stanmore, to whom I am indebted for unwearied assistance in a difficult enquiry.

<sup>2</sup> Mr. James Petrie, of North Pine River, who was intimately acquainted with the Turibul tribe from boyhood, and who as being affiliated to it accompanied the Turibul to the great Bunya Bunya feasts, which were held inland at certain times when the harvests of the fruit of the Bunya Bunya (*Araucaria bidnelli*) occurred.

pleasure in being permitted to add as an appendix a valuable critical analytical examination by Mr. Fison of the data given by Bishop Salvado as to the "names" of the aborigines near New Norcia in Western Australia. The original data will be found in a paper presented to the Legislative Council of Western Australia by the command of the Governor of that Colony in 1871. I endeavoured to obtain further information from Bishop Salvado, but I regret to say that my communication remained without reply.

*The Totem Divisions.*

The word "totem" which has been adopted from the well known nomenclature of the North American Indians, refers in this case to certain names which are borne by certain groups or divisions of the social organisation of the aborigines of Australia. This name which is borne by a whole group, the members of which are considered as being of the same blood and descent, is of course borne by the individual also. It is inherited from the mother or from the father according as descent is counted in the female line or in the male. Thus, taking an instance from the Wakelbura tribe of the Belyando River in Queensland,<sup>1</sup> where a man of the primary class Malera, of the sub-class Kurgila, and totem Small Bee<sup>2</sup> married, he would take to wife a woman who was of the primary class Wuthera, of the sub-class Obu, and of the totem Carpet Snake. The children would be of the totem Carpet Snake, but in accordance with the rule of the sub-classes which I have before referred to, would not be of the mother's sub-class Obu, but of the sister sub-class to it, namely, Wongo. The children, therefore, inherit the primary class name and totem name from their mother. When as in the Kaiabara tribe descent is in the male line, the rule is exactly analogous, *mutatis mutandis*.

The individual bears the totem name as one of a group to which the name is common, but besides this he has of course his own proper individual name, which, however, is often in abeyance because of the disinclination to use it, or even to make it generally known lest it might come into the knowledge and possession of some enemy, who thus having it might thereby "sing" its owner—in other words, use it as an "incantation."

Where there are two primary class divisions without four

<sup>1</sup> Mr. J. C. Muirhead, of Elgin Downs, who has an extended and intimate knowledge of the customs of these tribes.

<sup>2</sup> I have throughout given the English equivalents for the totem names.

sub-classes, as in the Barkinji type, it becomes evident that the totems are lesser divisions which form two groups, each of which as a whole is equal to one primary division. I only know of one case where the same totem occurs in both of the primary divisions, and I am not certain whether or no in this case it is an instance of two nearly allied birds, one of each belonging to a class. Where the four sub-classes are found the totem group which represents one primary class also represents its sub-classes in common. Thus, again taking the Wakelbura tribe as an example, the totem Carpet Snake belongs to both Wongo and Obu, these being the sub-classes equivalent to Wuthera, and so also with the other totems.

There is not any definite number of totems to each primary class; on the contrary, it is often found on enquiry that one class will have many more totems than the other, and that moreover some one totem will be a very numerous one as to its members—a “very strong one” as I have heard blackfellows express it—while another totem will be borne but by few people. This may arise out of several causes. There is the possibility in all cases, where the investigator has to make his enquiries from a few native informants that he may not have had given to him all the totem names, for, naturally the informant will remember and give those totems with which he has most connection. Thus he will name his own and those of his father and mother, and of the group of women one or more of whom he may lawfully marry, and of those people who form the local group to which he himself belongs. The relative number of the totems may become unequal, for it is quite clear that a totem might be driven out of some district or even be extinguished by a blood feud, for in such a case all the “totems-men”<sup>1</sup> would have to assist each other and equally abide the result.

The laws which govern the marriages of the two primary classes, and the descents of the children in them, also find expression in the laws governing the totems. But there are variations in the application of the exogamous rule. In all cases a person is prohibited from marrying another of the same totem, or even of one of the totemic sub-divisions of the same primary class. The fundamental law governs both cases. But the general law which permitted him to marry a woman of the other half of the community did not permit him in all cases to take to wife any woman of the other moiety, but frequently he was restricted in choice to a woman of some one totem. Thus, still further restrictions upon marriage arise. Starting from the

<sup>1</sup> “Totems-men” may I trust be used in analogy with “clansmen.”

earliest restriction, namely, that of the Barkinji type of system, where the choice of a wife is confined to one moiety of the community, the successive sub-divisions into sub-classes and totems produces a further series of restrictions, independently of those which follow out of the action of the wide kinships which arise from the system of group relationship of these aborigines, based upon the original division of the community into two intermarrying groups, each of which had a structure which is now represented by the Pirauru groups of the Dieri and other tribes near Lake Eyre.

It is interesting to note that the totems seem to be much nearer to the aborigines, if I may use that expression, than the primary classes. In many cases a man may not kill and eat his totem, and it is a serious offence for him to kill that of another person with intent to injure him. The totem is very generally supposed to warn its human brother of impending danger. The totems give occasion for certain magical dances at the initiation ceremonies ; at the Jeraeil of the Kurnai the totem, "the man's brother," is invoked over the novices.

The folk lore of the tribes is full of stories about the totem animals and their doings. In these stories animals are the actors, but they talk and act as would blackfellows. The narratives often begin in this manner : "A long time ago when the animals were all men," and with the Kurnai, indeed, such animals are recognised as having been their ancestors, the "Muk-Kurnai."

The Kurnai distinguish between those animals which were "Muk-Kurnai," and those which are only "Jeäk" or "meat," and no more. It is not easy to recognise with certainty from these stories whether the actors in them are thought to have been animals or men, whether it is the animals which were anthropomorphic, or the men who were theriomorphic. They are men and yet are animals, this is all that can be said, excepting that in most cases they were more powerful, both physically and magically, than men now are.

It is not to be said, however, that all such tales relate to the totemic animals, for some relate to the supernatural beings also with whom the blackfellow has peopled the land, the water, and the sky.

I cannot say whether these tales have been invented to fit the existing totems, or whether totemy and these fables have had a simultaneous growth. Perhaps the latter is the most probable ; and this is certain, that when the aboriginal legends purport to account for the origin of totemy, that is to say, the

<sup>1</sup> "Great-Kurnai."

origin of the social divisions which are named after animals, it is not the totems themselves to whom this is attributed, nor the blackfellows, but it is said the institution of these divisions and the assumption of animal names, was in consequence of some injunction of the great supernatural being, such as Bunjl, given through the mouth of the wizard of the tribe.

Very many of these tales about animals have been recorded elsewhere by other writers on Australian subjects, and it will suffice if I now complete these remarks by recording several which are characteristic.

Among the Muk-Kurnai, or ancestors of the Gippsland blacks, the Crow holds a prominent place, and it figures in one of their favourite legends which recounts how Baukan nearly succeeded in robbing the Kurnai of their fire.

The tribe being engaged fishing, Bülün, Baukan, and their son Buluntüt,<sup>1</sup> coming to the camp, took away all the fire, and began to ascend to the sky by way of Wilson's Promontory. Reaching the summit, Buluntüt threw up a string, made of kangaroo sinew, which stuck fast to the sky. He then tested its strength by pulling on it, when it broke. He then tried a cord of the sinews of the Black Wallaby, which likewise broke. Finally, he threw up a cord of the sinews of the Red Wallaby, which held fast. Then saying to Bulunbaukan, "Hold on round my neck," he began to ascend the cord, Baukan carrying the fire.

Now, while this was going on, Wagulan, the Crow, had observed the robbery of the fire by Baukan, and went in haste to tell the Brown Hawk. He, hastening after Baukan, found the fire thieves climbing up to the sky by the cord which Buluntüt had thrown up, and he hereupon swooped on them, and striking violently with his wings, caused Baukan to let fall the fire. This falling to the ground was seen by Bembrin (the Robin), who carefully blew it into a flame, and smearing some of the fire over his breast, has remained thus marked to this day. In this manner the Kurnai regained their fire.

Another legend of the Muk-Kurnai says how that long ago there was a great drought. All the waters were drying up, and the little that was left was drunk up by Tidelik (the Frog). The Muk-Kurnai being reduced to great straits assembled, and endeavoured to persuade Tidelik to give them the water back. But he refusing, they next tried to make him laugh, so that he no longer could keep his mouth shut, and the water would run out. Some tickled his sides, and the Eaglehawk, the Crow, and all the others danced before him. It was of no avail until at

<sup>1</sup> Bulun = two. Baukan is a supernatural dual female being.

length Noyang (the Conger Eel) came up with lakeweed hanging round him, and danced on his tail. The sight was so ludicrous that Tidelik laughed in spite of himself; the water all ran out of his mouth, the lakes and rivers became filled again, and the Muk-Kurnai were saved from perishing by drought.

A Wotjobaluk legend is as follows. The portion which I give is part of a much longer story, all of which relates to animals:—

Two Brambramgal, who were the maternal uncles<sup>1</sup> of Doan (*Petaurus*?), were walking about and met an old man called Gertük (Mopoke), who had a water-hole of his own in the fork of a tree, which no one knew of, and which he would not show to any one. The Brambramgal watched him, and at last saw him go to the tree and drink. Then they said, "May the fork of this tree close up over our grandfather!"<sup>2</sup> The tree closed up and shut up old Gertük with his dog in the hole. Soon after Binbin (the tree-creeper) with two friends came that way and went running up round the tree. Hearing a voice somewhere, they said, "Where are you?" "Here I am," replied Gertük, "shut up in this tree." Binbin took his tomahawk, and began to knock on the tree to find out where to cut. "Don't cut there" said Gertuk, "my forehead is there," "don't cut there, it is where the top of my head is," and so on, until Binbin got cross and cut a hole just where Gertuk's breast was and cut him badly. He pulled him out and laid him on the ground. He was bleeding and nearly dead, but his dog came and licking his wound made him well again. The mark in the bird's breast is where the wound was.

Then Gertuk being very angry got a kangaroo skin bag and went about collecting whirlwinds until he had it full. Then he tried it and finding it was strong enough to blow the trees out of the ground he went in search of the Brambramgal whom he found near Mükbili.<sup>3</sup> He opened his bag and let out a whirlwind. The elder Brambramgal caught hold of a light wood tree<sup>4</sup> which stood fast, but the younger got hold of a pine tree<sup>5</sup> and has been blown away with it to a place called Waitwait Kalk. Being alarmed by hearing the noise of the bittern in the lagoons he went away further down the Wimmera River. Meanwhile the elder brother felt very uneasy about him and went for their mother. She, pressing her breast, sent the milk like a rainbow falling at the place where the younger brother

<sup>1</sup> Jarambüp = mother's brother.

<sup>2</sup> Wine balebük jadtjira ngapa ngaurak.

Let it close up fork grandfather our.

<sup>3</sup> A place to the eastward of Dimborla shown on the maps as Muckbilly.

<sup>4</sup> *Acacia melanoxylon*.

<sup>5</sup> Probably *Callitris verrucosa*.

then was. It was very far off. She and the elder Brambramgal travelled all day and on the following morning she again pressed out some milk which fell nearer to them, and so on day by day until it fell quite near. Then the elder Brambramgal said "Wait here, mother, while I go and look for my brother." He looked about and found where his brother had been eating a duck, and at length he came close to him but his younger brother did not know him. The elder brother took care of him for several days until a snake bit him and he died. Then his brother being very sad said, "I wish that gum tree were my brother!" He cut it down and chopped a figure of a man out of it, saying continuously, "Get up and be my brother!" until the log got up and became a man and recognized his elder brother. Then the two went far away to the westward and lived in a large cave until after a time they went still further no one knows where.

The Woiworung had the following legend:—

The Native Companion<sup>1</sup> and Emu were black people. The Emu did not like to see the Native Companion with so many children. So he took all his own away and hid them except one. Then he went to the Native Companion and said, "Why do you let yourself be troubled with so many children—see how comfortable I am with only one." The Native Companion replied 'Yes, it is very well for you with only one—children are a great trouble—only what can I do—I have so many?' "You had better kill all but one," said the Emu. "I don't want to kill my children," said the Native Companion. "You take my advice and you will be much better off," replied the Emu. So the Native Companion killed all his children but one. Then the Emu brought all his out and said, "See how much better off I am than you!" Since that time the Native Companion has only one child.

*The Abnormal Totems.*—Besides what may be called the regular or normal totems there are others which are very peculiar and exceptional. When working out the beliefs of the Kurnai I found that their only existing totems were two, one being confined to the males and the other to the females. These totems, in fact, divided the community into two moieties of different sexes, and it was only after I had obtained a far wider view of the class systems of the tribes of South-Eastern Australia, that I came to see that these Kurnai totems are in fact common under other designations or under other representative animals to all the tribes mentioned.

In the Kurnai tribe the Emu Wren,<sup>2</sup> and the Superb Warbler<sup>3</sup>

<sup>1</sup> *Grus australiasianus.*

<sup>2</sup> *Stipiturus malachurus.*

<sup>3</sup> *Malurus cyaneus.*

are respectively the "man's brother" and the "woman's sister." The Emu Wren is held to have been among the Muk-Kurnai of olden times, when, according to the phrase commonly used by the blacks, the animals were all men.<sup>1</sup>

The high consideration given to the Emu Wren is abundantly shown by the fact that its name is invoked at the Jeraeil, or initiation ceremonies, over the novices for the purpose of infusing into them the due amount of manly virtues as the Kurnai see them to be.

Taking Gippsland as a starting point, I find in the coast country extending thence to Sydney that the Emu Wren is the man's brother but associated here with the Bat in the same relation, while the "woman's sister" is the Treecreeper.<sup>2</sup>

Totems of this kind no doubt extend far round the east coast, for I find that the "woman's sister" was known at Port Stevens,<sup>3</sup> and I have lately heard of it at Brisbane.<sup>4</sup>

Proceeding westwards from Gippsland, totems of this kind are found to have existed among the Woiworung. In this tribe these totems were double, there being the Emu Wren and the Bat for the men, and the small Nightjar and the Superb Warbler for the women. Probably the same totems obtained among all the tribes of which the Woiworung were representative.

The Wotjobaluk of the Wimmera River had also these totems and thus show what were the beliefs of tribes over a vast area of country covered by the class names Krokitch and Gamutch. In this tribe the man's brother was the Bat and the woman's sister was a small Nightjar.

With these people these were real totems although of a peculiar kind. They were called "yaur" or flesh, or "ngirabül" or "mir," just as were the totems proper. The only difference was that the Bat was the brother of all the men while any one totem was the brother only of the men who bore it as their totem. The Wotjo said that the Bat was the man's "brother" and that the Nightjar was his "wife."

The curious custom of fighting about these totems seems to have prevailed wherever they were found. I have narrated elsewhere the Kurnai fights about them.<sup>5</sup> The Wotjobaluk give

<sup>1</sup> There were also at that time animals which were women—for instance, the Superb Warbler and the Leatherhead (*Tropidorhynchus corniculatus*) whose constant chattering is appealed to by the Kurnai in support of their statement that it was once a woman. There are others, but these will suffice.

<sup>2</sup> Probably *Climacteris scandens*.

<sup>3</sup> Mr. W. Scott, writing to me about the Port Stevens' blacks, mentions "a Woodpecker, the black gin's *gimbi*, or friend. The above mentioned Treecreeper is often called "Woodpecker."

<sup>4</sup> Mr. James Petrie.

<sup>5</sup> Kamilaroi and Kurnai, p. 201.

also a good illustration of this practice. They held that "the life of Ngünungünüt (the Bat) is the life of a man and the life of Yártatgürk (the Nightjar) is the life of a woman," and that when either of these creatures is killed the life of some man or of some woman is shortened. In such a case every man or every woman in the camp feared that he or she might be the victim, and from this cause great fights arose in this tribe. I learn that in these fights, men on one side and women on the other, it was not at all certain which would be victorious, for at times the women gave the men a severe drubbing with their yamsticks while often women were injured or killed by spears, although they were clever at turning these aside or even breaking them with their own peculiar weapon.<sup>1</sup>

Such fights also took place among the Murring and according to Mr. Petrie also at Brisbane. Thus it is seen that this curious belief in the two totems and the fights connected with this belief extended over a large part of South-Eastern Australia, and I doubt not that on enquiry it will be found to have a still wider range.<sup>2</sup>

Among the legends current among the tribes which were treasured up by the old men and repeated to the young people there are also some having relation to these totems which I may as well record.

These legends as well as those already given were told to me by old men of the several tribes, and I have endeavoured to record them as much as possible in the manner in which they were repeated.

The Coast Murring say that "long ago, when the earth was bare and as hard as the sky and without trees, Kaboka (the Thrush) by his magic caused a flood to cover the land by which all creatures were drowned except a few of the animals which crawled out into the dry ground and became human-like creatures. They were without sex until the Emu Wren differentiated them into men and women by a curious surgical operation."

The Wotjobaluk also have a legend which relates that formerly the inhabitants of the earth were like unto human beings, and the Bat feeling lonely made the difference in sex and thus having obtained a wife, made a fire by rubbing a stick across a log.

<sup>1</sup> Mr. Fison tells me that in one or two of the Fijian tribes there are occasions on which the women fight with the men. The women are allowed to use sticks and often inflict ugly wounds, while the men may only retaliate by slinging balls of clay at them from the end of a stick.

<sup>2</sup> Mr. A. L. P. Cameron speaks of these abnormal totems among the tribes in South-Western New South Wales in "Notes on some Tribes in New South Wales."—"Journ. Anthropol. Inst.," vol. iv, p. 344.

With the Woiworung the Bat (Balaiüng) seems to have been an adversary of Bunjil, and the following is a legend which I have heard.

"The Bat is the brother of all the men. A long time ago, the whole country was covered with long grass so that people could not walk about over it. Bunjil said to the Bat 'Come and be with us on our side.' But he replied 'No, your's is a very dry ground, you ought to come over to me.' Bunjil said, 'Very well! then I will leave you alone.' He then sent his two men Djurt Djurt<sup>1</sup> and Thara<sup>2</sup> to burn the whole of the Bat's country, and he went himself with his children to a place near Mansfield, called by the white men the Cathedral, where he put them in a safe place surrounded by stones. The country was burned up to the Murray River. Bunjil had said to Djurt Djurt and Thara 'When you have burned all the country you can stop there and be stone.' They are now turned to stone near Berwick, where you can see Djurt Djurt carrying Thara.<sup>3</sup> A few of Bunjil's children were burned, but the Bat and all his children were scorched. That is why he is so black and has such a grinning face."

It is evident that the institution of the "man's brother," and the "woman's sister" as totems is very widespread throughout Australia. I have traced it over an extent of about a thousand miles, and in tribes having marked differences in language and in social organization. It seems to be very persistent and enduring, for it remained among the Kurnai in full force after the ordinary social organization in class divisions and totems had become extinct. What may have been the origin of these abnormal totems I cannot tell. Possibly it may have been connected with the origin generally of all totems, and to explain the rise of totemism is as yet one of the unperformed tasks of anthropology.

#### *The Class Divisions have been subject to Development and Decay.*

In the preceding sections I have given my reasons for the belief that the primary class divisions were originally totems, and also that the class systems as a whole have been developed by subdivision of the earlier and simpler forms. There can, I think, be no doubt that the present totem groups are the youngest, and

<sup>1</sup> The Nankeen Kestrel, *Tinnunculus cenchroides*.

<sup>2</sup> The Brown Hawk, *Jericidea Berigora*?

<sup>3</sup> I am told that in old times before white men came, the blackfellows when they wanted to catch plenty of kangaroos, used to go to these two stones, and taking a bough, strip off the leaves and throw them down in front of "Djurt Djurt and Thara," then laying the twigs on the leaves. This is the only instance that I know of anything even approaching a votive offering.

in some cases of systems framed on the Barkinji type the primary divisions are totems as much as the totems themselves. The belief that the class systems have been produced by a division of the earlier groups has support given to it by traces of the process which can here and there be recognized. A good instance is given by the Wotjobaluk tribe. The two primary divisions of this tribe are found over a wide extent of country in slightly varied forms, probably dialectic variations; they have as sub-divisions not four sub-classes as in the Kamilaroi type, but six divided into two groups, and these sub-classes are, in fact, totems. These again have other groups of totems attached to them, for which in default of a better name I have used the term "pseudo totem." I subjoin the data in my possession, premising that there are details evidently still wanting. Enough is, however, recovered to enable me to deduce certain principles which, I believe, to underlie this system.

Primary Classes.	Totems.	Pseudo Totems.	Mortuary Totems.
Krokitch ...	Ngauí = the sun ...	Bünjil = a star, &c....	Würtngani = a shadow thrown by the sun.
	Barewun = a cave ...	—— ?, &c. ....	Beil Beil = red gum tree. <sup>2</sup>
	Batchangal = pelican, &c.	Berik = native cat, &c.	Mithagragr = the bark of the smaller Eucalyptus. <sup>3</sup>
Gamutch ...	Jalan = death-adder <sup>1</sup>	Günowara = swan, &c.	None.
	Ngüngül = the sea ...	—— ?, &c. ....	Jarnia = sea weed.
	Würant = black cockatoo, &c.	Ngui = black duck, &c.	Darimürük = a synonym of the black cockatoo. <sup>4</sup>

This system seems to be a peculiar development of the Barkinji type. It has two primary classes which are recognized as being the equivalents of the Barkinji class names.<sup>5</sup> But in this case the totems have advanced to the grade of sub-classes. They have a markedly independent existence, subject to their primary. Yet there is not the restriction which is found in some of the systems of the type named wherein marriage of a totem is restricted to some other totem. In this case a Krokitch of whatever totem can marry a Gamutchgurk<sup>6</sup> of any of the totems of that class, always provided that there are not any disabilities

<sup>1</sup> *Acanthopsis antarctica*.

<sup>2</sup> *Eucalyptus rostrata*.

<sup>3</sup> *Eucalyptus dumosa*.

<sup>4</sup> Dari = white, muruk = temple, or side of the head.

<sup>5</sup> See p. 38.

<sup>6</sup> Gurk is the feminine affix.

arising out of nearness of kin. Another peculiarity is that several of the totems have a second name, which seems to have been on the high road to separate existence, or which may be the old name in process of extinction. Ngaui, for instance, has a second name, Garchūka,<sup>1</sup> which one informant, a Ngaui man, claimed as the synonym of his "mir," or totem, in fact, that both of these "mir" were his names. But Ngaui was especially his, and Garchuka came "a little behind it." On the other hand another informant, who also claimed both Ngaui and Garchuka, said that he was especially Garchuka, and that Ngaui came a little after his other name. Wherein the difference lay I was unable to learn more exactly, but it seems to me that Ngaui and Garchuka are, in fact, very slightly divergent branches of the same totem. This is, moreover, indicated by a remark made by each informant as to the pseudo totems to which I shall refer further on. Krokitch-Batchangal has also a second name which, however, appears to be more a name than a totem. Its members are called "Darauyauün-*ngau-üng*," or "we are warming ourselves," a name given to them because fire (*wanyep*) is one of their pseudo totems.

I have given three totems of each class as examples, but there are more; of Krokitch eight, and of Gamutch at least four.

The pseudo totems are very peculiar. In a former work by Mr. Fison and myself, these were referred to in speaking of the Mount Gambier tribe.<sup>2</sup>

The two primary classes appear in fact to divide all natural objects between them. As the aborigines say of those things, "they belong to them." This is not peculiar to these tribes but is found at far distant places in Australia, and may be much more general than has been suspected.<sup>3</sup>

As the primary class is divided into a number of totemic subdivisions, so all the objects claimed by the class are divided between these totems. Thus each totem claims a certain number of natural objects which are not all animal, for there are also a star, fire, wind, &c.

The distinction between the totemic names which are subdivisions, and those which are not lies in this. Both are called "mir" but while one of my informants, a Krokitch man, takes his name Ngaui from the sun, he *owns* Bunjil, one of the fixed

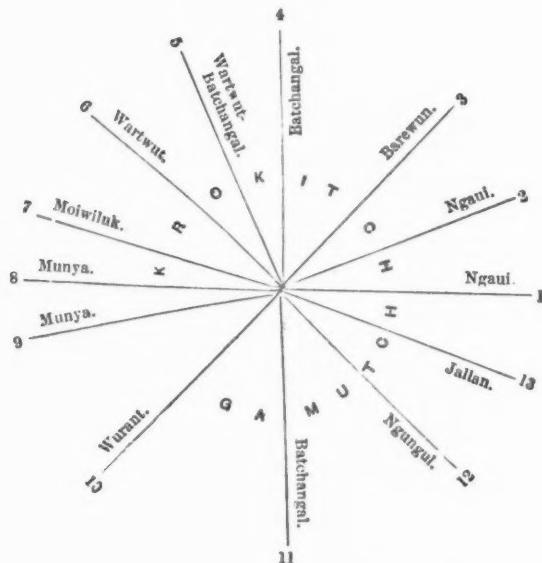
<sup>1</sup> White cockatoo.

<sup>2</sup> Kamilaroi and Kurnai, p. 168.

<sup>3</sup> Mr. J. C. Muirhead tells me that in the Wakelbara and other related tribes in Northern Queensland everything animate and inanimate belongs to one or other of the two class divisions. A wizard may only use in his incantations substances which belong to his class. The stage on which a dead body is placed must be made of the wood of a tree which is of the same class as the deceased, and so on with other matters.

stars,<sup>1</sup> and does not take it for a name at all—he is Ngaui, but not Bunjl. The true totem owns him, but he owns the pseudo totem. Light is thrown upon the structure and the development of the class divisions by considering the mechanical method used by the Wotjobaluk to preserve and explain a record of their classes and totems, and of their relation to those and to each other.

My informant worked this record out by laying down pieces of stick on the ground, determining their directions by the sun, and I took the directions of these sticks by the compass.



The stick No. 1 was first placed in a direction due east<sup>2</sup> then stick 2 was laid down pointing N. 70° E. They represented the two sub-divisions of the Ngaui division of Krokitch and the people belonging to them or forming them were called "Ngaunga-güli," or "men of the sun."<sup>3</sup> The direction in which the sticks pointed indicated how the individual was to be laid in his grave. That is to say, his head was laid due east, or 20° north of east, as he respectively belonged to one or other of the

<sup>1</sup> Probably Fomalhaut.

<sup>2</sup> In the Wotjobaluk language North = Wartwut, by which name the hot-wind is also known; East = Bopel. Bopel; South = Wépür; and West = Winjür.

<sup>3</sup> Ngaui = the sun, güli or küli = man.

sub-divisions of Ngaui. Ngaui is the principal "Mir" or totem and from it all the others are counted.

My informant then placed stick 4 pointing north, indicating a very powerful Mir of Krokitch, namely, Batchangal. Stick 3 was then placed between 4 and 2, and indicated the Barewun people. The whole space between 1 and 2 is called "Kolkorn-Garchuka or "all" or "wholly" of the White Cockatoo. I have already said that this is a synonym of Ngaui, or nearly so. The space between 3 and 4 is called Krokitch-Batchangal, to distinguish it from another Batchangal of the Gamutch primary class which is represented by stick 11.

Stick 6 was now laid down, being Wartwut, the name of a powerful Mir, whose totem was the Hot-wind, which blows in that country from about north-west. Stick 5 placed between 4 and 6 pointing N. 20° W. indicated Wartwut-Batchangal, a totem having affinities to both 4 and 6. The space between 4 and 5 is called Kolkorn-Batchangal or "all," or "entirely Batchangal," and between 5 and 6 the space is Wartwut-Batchangal. My informant had now some difficulty in fixing the directions for the remaining totems of Krokitch, and he stated that to work it out satisfactorily he would require to get a number of men together so as to have members of the other totems to point out their own directions. However, after consideration he arranged as follows: He placed 8 as indicating Münya, and on either hand 7 and 9, indicating respectively Moiwiluk, and a second totem of 8. The space between 6 and 7 he called Wartwut-Moiwiluk, between 8 and 9 Kolkorn-Munya. The space between 7 and 8 he did not name, and I omitted to ask him. These nine sticks represent the principal totems of Krokitch. Perhaps there may be more, as there appears to be, for instance, a vacancy between 2 and 3 and between 3 and 4: on the other hand if the totems 5 and 7 are sub-divisions of 4 and 6 respectively, the vacancies referred to would be explained on the supposition that 2 and 3 had not sub-divided. That 7 is a sub-division of 6 is suggested by the statement of another informant that he was Wartwut but that Moiwiluk also "belonged to him," and by the statement of the informant who made the diagram of stick that the informant just named was "Wartwut but also partly Moiwiluk."

It seems, therefore, that the totems have been formed in this instance by a process of sub-division, by which for instance the group Ngaui has been separated into two nearly allied totems. Münya has also separated into two totems, which are distinguished, if not by separate pseudo totems, at any rate by different mortuary names.

Since the totems are counted from Ngaui, and since Krokitch-

Batchangal comes next in order of importance, it may be that Barewun has been a later development. As the space in the diagram between Ngaui and Barewun is called "wholly Garchuka" it seems possible that Barewun may have been a segmentation of Batchangal.

The synonym Garchuka for both of the Ngaui totems may also mean that that name is the oldest of all, and that out of it those two totems were formed.

Analogous suggestions arise from other particulars given in the diagram.

The mortuary totems are only applied to an individual after his death. Thus a Krokitch-Ngaui man dying would no longer be spoken of as Ngaui but would be "Wurti-Ngaui" or "a Shadow thrown by the sun;" a Krokitch-Batchangal would be Mitbagragr, or the "Bark of the Mallee," and so on. How this has arisen I know not, but it may, perhaps, have been connected with the extreme disinclination of these aborigines to mention the name of the dead.

The tabular form which I have given of the Wotjobaluk class system is imperfect, but the details suffice to show that it is a somewhat abnormal development of the Barkinji type in which the totems have obtained a marked prominence and have been in process of further segmentation partly in themselves and apparently also by the influence of the pseudo totems.

Cases such as that of the Wotjobaluk tribe show a process of development in the class systems, but there are other cases where there seems to have been a decay of the class system tending towards extinction, and of these the Woiworung tribe is a good example, because in it the process has been arrested by the annihilation of the tribe by reasons of the "blessings of civilisation" at a stage when one totem still remained extant. Other totems are recognisable in their apotheosis as stars, as recorded in the folklore of the tribe.

I have had occasion in other papers to deal with this tribe, to which I refer the reader for details.<sup>1</sup> The following are details relating to my above statement.

It was one of a number of kindred tribes all bound together by the same organisation. They occupied that part of Victoria which may be roughly defined by saying that in addition to the Western Port District it extended round the flanks of the Australian Alps to the Ovens River and northwards, westwards, and southwards as indicated by the points Seymour, Sandhurst, Bacchus Marsh, and Geelong. Beyond these boundaries were

<sup>1</sup> "The Jeraeil," "Journ. Anthropol. Inst." May, 1885. "Migrations of the Kurnai Ancestors," "Journ. Anthropol. Inst." May, 1886.

other communities distinguished by having on the north-east side the Kamaroi organisation, on the north-west, west, and south the class organisation of the Wotjobaluk type, and to the south-east the Kurnai tribe without any class names whatever. Within the bounds named all the tribes had the two class names Bunjal and Waa, and they constituted what may be called the "Kulin nation," from a word found in some form in all their different dialects and meaning "man," i.e., one of their own full grown males.

The social organisation of these tribes was based upon the above class names with descent in the male line, and the distribution of the members of the two classes in local totem clans, which I have before referred to. I cannot pretend to have obtained a complete list of all the clans of the different tribes of the Kulin nation, but the information which I have recorded gives certain trustworthy data. Out of fourteen clans I find six which were Waa and eight which were Bunjal. Marriage was of course between the two class names, and therefore since these names had received a peculiar local distribution, or perhaps had been locally aggregated, the marriages had become local as well as totemic. That is to say, a man being confined to one class name was also confined by customary law to the choice of a wife from some one or more localities.

The class name Waa = Crow had no totems, but Eaglehawk = Bunjal had one totem, Brownhawk = Thara. A native legend recounts how Bunjal left the earth with his sons and ascended to the sky in a whirlwind. Woworung astronomy points out where they now are. Bunjal is Fomalhaut and as my informant said, "He is looking at what men are doing." The "sons"<sup>1</sup> of Bunjal are shown in the subjoined table.<sup>2</sup>

Tádjeri .. .. ..	Achemar .. ..	<i>Phascogale pennicillata.</i>
Túrnung .. .. ..	?	<i>Petaurus pygmæus.</i>
Yukope .. .. ..	$\alpha$ crucis .. .. ..	?
Dántün .. .. ..	$\beta$ crucis .. .. ..	<i>Trychoglossus multicolor.</i>
Djürt-djürt <sup>3</sup> .. ..	$\beta$ centauri .. ..	<i>Tinunculus cenchroides.</i>
Thára .. .. ..	$\alpha$ centauri .. ..	<i>Hiericidea Berigora?</i>

<sup>1</sup> Spoken of at p. 59 as Bunjal's "men."

<sup>2</sup> My Woworung informant used a curious *aide memoire* for Bunjal and his sons, and he said it was used by his tribe for the purpose of record. The little finger of the left hand is used for Tadjeri, the ring finger for Turnung, the middle finger for Yukope, the fore finger for Dantum, the thumb for Thara, and the thumb of the right hand for Djurt Djurt. Here the record ends.

<sup>3</sup> The Wotjobaluk say that Djurt is the brother of Bunjal, who was once a VOL. XVIII. F

The first column gives the native name of the totem animals, the second that of the star. The star which is "Turnung" was pointed out to me but I cannot now identify it.

The totems which Waa must have had seem to have become totally extinct without leaving a trace behind. My informant, who was Waa, and who was an extraordinary repository of information relating to his tribe, knew of none. I am convinced that had there been any legend about the "sons," that is to say, the totems of Waa, he would have known it.

The Woiworung class system when it existed in a complete form, must have been precisely that of the Barkinji type—that is, it had two primary intermarrying classes (Eaglehawk and Crow), each having a group of totems attached to it.

I submit that the instances which I have given shew that we may still find traces in the class systems both of development and of decay tending towards extinction.

#### *Conclusion.*

In these notes I have placed on record additional facts as to the structure and geographical range of the class systems of tribes spread over almost the whole of the eastern half of the Australian Continent. I submit with some little confidence that the comparison of the different systems suggests a probable explanation of the development of the more complicated systems from the more simple ones. The structure of these systems suggests also that their arrangement with so remarkable a system of checks upon marriage has not been a matter of accidental occurrence, or, if I may use the expression, of the automatic development of their society, but of deliberate arrangement by a long succession of the aborigines in the past, who have thus endeavoured to bring their matrimonial arrangements into accord with that which they believed to be right and proper, and for the welfare of the community.

But while a comparative study of these systems reveals to us with some certainty their structure and the manner of their development, it leaves us in uncertainty as to the causes which led to their first inception, the manner in which the two primary divisions were formed, and the character of the more primitive society out of which the two intermarrying classes grew. It may be a matter of inference that the earlier group was what we have elsewhere spoken of as an "undivided commune," and

man on the earth and who is now a star. Bunjil's two wives were Günowara = Swan. With the Woiworung Bunjil is Fomalhaut and his two wives are  $\gamma$  and  $\epsilon$  Piscis.

that it would resemble one of the two exogamous groups of the Pirauru practice, in so far that each level generation had its marital rights in common, and as a whole was the parent of the next following generation.

It seems indeed that some such earlier community is implied by the establishment of the two primary class divisions. Yet their segmentation, if I may use that word, must have occurred at so early a period of man's history as to admit of the resulting social organisation of two exogamous classes being carried over the whole of the earth's surface wherever savage man has penetrated.

Such a conclusion seems to me to be forced upon one by the prevalence of this organisation over the whole world arranged into some form of intermarrying exogamous groups analogous to those of the Australians.

On this view it may be hopeless to expect to find any record of the causes which led to the origin of the two classes, or if we find any tradition which purports to give an explanation it is one which attributes it to a supernatural agency.

As to the origin of the totem names, I do not venture upon an explanation. I find no data at present upon which I feel it safe to generalise. All that I think I may venture upon is, that if the two first intermarrying groups had distinguishing names, they were probably those of animals and their totems, and, if so, the origin of totemism would be so far back in the mists of the ages as to be beyond my vision.

If others feel that they have a clearer vision, well and good, but it will be well to bear in mind that no explanation of the origin of totems and of totemism will suffice which ignores the Australian evidence as to the development of aboriginal society out of a status at least as primitive as that of the Pirauru group. Still less will it avail to deny the existence of the "intermarrying classes," or to assert that "they are a hypothesis only."<sup>1</sup> They are facts patent to all inquirers, and any one who chooses can examine them for himself.

Shortly stated, the conclusions to which the facts recorded in these notes have led me are as follow:—

(1.) The class systems of Australia have been developed from the original division of a community into two exogamous groups, each one being of the Pirauru character, and with descent counted through the mother only.

(2.) The gradual development of the various class systems has been accompanied by changes in the status of marriage and in the line of descent.

<sup>1</sup> J. F. McLennan's "Studies in Ancient History." New edition, edited by Dr. McLennan. Appendix, p. 315.

(3.) With the decay of the Pirauru practice, and the establishment of individual marriage, the line of descent has been changed from the mother to the father only.

(4.) With individual marriage and descent in the male line, the tendency has been for the class organisation to become extinct, and for the organisation in local groups to take its place.

(5.) Among the many causes producing social changes must be counted the influence of a more plentiful food supply in better watered districts.

#### APPENDIX.

##### *The New Norcia Marriage Laws.*

Bishop Salvado, of the Catholic Mission at New Norcia, Western Australia, shews the marriage regulations of the aborigines in that locality by means of an ingeniously arranged tree,<sup>1</sup> which is reproduced by Mr. G. W. Rusden in his "History of Australia," vol. i, p. 117. The reader is referred to Mr. Rusden's work as being more accessible than Salvado's.

The New Norcia tribe is divided in six classes, its system therein differing from that found among the West Australian natives in the neighbourhood of the N.W. Cape, which is of the four-class Kamilaroi type, with the usual arrangements as to marriage and descent.

The six classes are called, respectively, Palarop, Nakongok, Jirajiok, Mordorop, Tondorop, and Tirarop. Their marriage prohibitions are exhibited in the following table:—

Class	May not marry
Palarop .. .. .. ..	Jirajiok, Palarop.
Nokongok .. .. .. ..	Jirajiok, Nokongok.
Jirajiok .. .. .. ..	Jirajiok, Palarop, Nokongok.
Mondorop .. .. .. ..	Tirarop, Mondorop.
Tondorop .. .. .. ..	Tirarop, Tondorop.
Tirarop .. .. .. ..	Tirarop, Tondorop, Mondorop.

A glance at this table shows that the six classes range themselves into two sets of three each, and the prohibitions reveal

<sup>1</sup> "Information respecting the Habits and Customs of the Aboriginal Inhabitants of Western Australia." Presented to the Legislative Council by His Excellency's commands. Printed by the Government Printer, Perth, W.A., 1871.

an exogamous law, which is strictly binding upon every class, and partially binding upon each set. A clear distinction between the two sets is thus arrived at; in fact, each set represents a primary class, like Dilbi or Kupathin of the Kamilaroi, but with three sub-classes belonging to it, instead of two, as in the Kamilaroi system. Distinguishing these primary classes as A and B, we have :—

A = Palarop, Nokongok, Jirajiock.  
 B = Mondorop, Tondorop, Tirarop.

In the following table the marriages are shown, those which offend against the usual exogamous law of the primary classes being distinguished thus \*.

Primary Class A.	Marries	Primary Class B.	Marries
Palarop ...	{ Mondorop B. Tondorop B. Tirarop B. Nokongok A.*	Min dorop ...	{ Palarop A. Nokongok A. Jirajiock A. Tondorop B.*
Nokongok ...	{ Mondorop B. Tondorop B. Tirarop B. Palarop A.*	Tondorop ...	{ Palarop A. Nokongok A Jirajiock A. Mondorop B.*
Jirajiock ...	{ Mondorop B. Tondorop B. Tirarop B.	Tirarop... ...	{ Palarop A. Nokongok A. Jirajiock A.

From the foregoing we get the social organisation of the tribe which is as follows :—

- (1.) Two primary classes.
- (2.) Each primary class has three exogamous sub-classes, any one of which may marry into any sub-class of the other primary division.
- (3.) In each primary class two of the sub-classes intermarry with one another as well as with all those of the other primary division.

It will be observed that one sub-class in each primary division (Jirajiock A, Tirarop B) marries only into the other division. That is to say, these two sub-classes observe the usual exogamous rule of the primary classes, and the question is, why the other sub-classes do not observe it? One or two

conjectural solutions of this problem might be offered ; but our experience in these researches has made us shy of such solutions how plausible soever they may appear. If we knew the regulations as to descent and the totemic divisions of the sub-classes (supposing them to exist here as elsewhere) we should probably find in them much to help us. Unfortunately Dr. Salvado not only does not give these particulars, but he turns a deaf ear to our appeals for information concerning them, and all our efforts to obtain the information from other sources have been equally unsuccessful.

LORIMER FISON.

*Description of Plate V.*

Sketch map of Australia, showing the geographical distribution of the various class-systems.

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The PRESIDENT read the following note :—

NOTE ON AUSTRALIAN MARRIAGE SYSTEMS

By FRANCIS GALTON, M.A., F.R.S.

A very simple way of understanding the peculiarly complicated system of Australian marriages has lately occurred to me, and I should be glad to bring it before the notice of the meeting. The well-known Kamaroi system is as follows: I add the letters A., B., C., D., to the names of the sub-phratries for the purposes of the explanation to be offered :—

TABLE I.

A Male	marries a	and the children are
A. Muri .. ..	D. Kumbo .. ..	C. Ipai.
B. Kubi .. ..	C. Ipai .. ..	D. Kumbo.
C. Ipai .. ..	B. Kubi .. ..	A. Muri.
D. Kumbo .. ..	A. Muri .. ..	B. Kubi

I had often tried, in vain, to find an easy clue to this strange custom, feeling assured that no aboriginal Australian brain could acquire the accurate and almost instinctive knowledge they all have of it without one. At last, I think, or rather hope, that I have succeeded. We now know that the Muri and the Kubi are sub-phratries of the phratry called Dilbi, let us designate this phratry by the letter P.; also that the Ipaï and the Kumbo are sub-phratries of the phratry called Kupathin, and this phratry we will designate by Q. More briefly, A. and B. are sub-phratries of P.; C. and D. are sub-phratries of Q.

Now if we suppose a cross division, such that A. and C. are both alike in some respect, which we will indicate by appending to them the numeral 1, and that B. and D. are also alike in some contrasted respect, which we will designate by appending to them the numeral 2, we shall convert Table I into Table II.

TABLE II.

Phratries.	A male	marries a female	their children are
P. ... .. {	A. = P. 1	Q. 2	Q. 1
	B. = P. 2	Q. 1	Q. 2
Q. ... .. {	C. = Q. 1	P. 2	P. 1
	D. = Q. 2	P. 1	P. 2

The last three columns are to read thus:—A male P. 1 marries a female Q. 2; their children are Q. 1. A male P. 2 marries a female Q. 1; their children are Q. 2; and so on. We see at once from this that a man may not marry a woman who has the same letter or the same numeral as himself, and that the children take after the letter of their mother and after the numeral of their father. Amongst the Kiabara the marriage rule is exactly the same, except that the children take after the numeral of their mother and after the letter of their father.

It is extremely difficult, if not impossible, to find good analogies in civilised life to these phratries and sub-phratries. I will, therefore, take an illustration that does not profess to be applicable, otherwise than by giving an adequate idea of the sort of function that is intended to be described by these numerals and letters. Suppose persons of both sexes to be educated, some at Oxford, and some at Cambridge. Again, suppose persons of both sexes to be members of one or other of two clubs

to which members of either university are equally admissible, such as are the Oxford and Cambridge Club and the University Club. Then the Australian marriage rule is analogous to saying that a man may not marry a woman who is a member either of the same university or of the same club as himself. Also, that, if he be one of the Kamaroi, the children will be entered at their mother's university and at his club ; but if he be one of the Kiabara, the children will be entered at his university, and at their mother's club. A rule so simple as this could be understood by any savage, whose totem and other customs are quite as distinct, and affect a far larger part of their lives than the consequences of being an Oxford or a Cambridge man, and of belonging to this club or that, affect ours. Now comes the testing question, does such a cross division as that which I have supposed, really exist ? I communicated with Mr. Frazer on this subject, whose recent volume on Totemism is very favourably known. He pointed out to me that Mr. Ridley called the Muri the highest grade and the Kubi the lowest, and that, he adds, "so every family passes in two or three or four generations, through the highest and lowest grades—a curious combination of the ideas of aristocracy and levelling—but the difference in rank is slight." Mr. Frazer also informs me that Prof. Müller, of Vienna, has quoted apparently from an early work of Mr. Ridley, whether by mistake or not, I do not know, in a different sense, making the Ipai and Kumbo patricians, and the Muri and Kubi plebians. It is reasonable to believe that the zealous inquirers into Australian totems and other distinctions have not yet got wholly to the bottom of them, and that an as-yet undiscovered cross division, such as I have supposed, may be found on further inquiry to exist. Mr. Frazer has written on this subject to his Australian correspondents, and I await the result with much curiosity. If my expectations are falsified, I can at all events recommend my theory as a *memoria technica*, by which the complexities of the Australian marriage customs may easily be kept in mind.

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## ANTHROPOLOGICAL MISCELLANEA.

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### *The PYGMY RACES of MEN.*

By Prof. WILLIAM HENRY FLOWER, C.B., LL.D., F.R.S.

(A Lecture delivered at the Royal Institution of Great Britain<sup>1</sup>  
on April 13th, 1888.)

It is well known that the nations of antiquity entertained a widespread belief in the existence of a race or races of human beings of exceedingly diminutive stature, who dwelt in some of the remote and unexplored regions of the earth. These were called *Pygmies*, a word said to be derived from  $\pi\gamma\mu\eta$ , which means a fist, and also a measure of length, the distance from the elbow to the knuckles of an ordinary-sized man, or rather more than 13 inches.

In the opening of the third book of the "Iliad," the Trojan hosts are described as coming on with noise and shouting, "like the cranes which flee from the coming of winter and sudden rain, and fly with clamour towards the streams of ocean, bearing slaughter and fate to the pygmy men, and in early morn offer cruel battle," or, as Pope has it—

" So when inclement winters vex the plain,  
With piercing frosts, or thick descending rain,  
To warmer seas the cranes embodied fly,  
With noise and order through the midway sky,  
To Pygmy nations wounds and death they bring,  
And all the war descends upon the wing."

The combats between the pygmies and the cranes are often alluded to by later classical writers, and are not unfrequently depicted upon Greek vases. In one of these in the Hope collection at Deepdene, in which the figures are represented with great spirit, the pygmies are dwarfish-looking men with large heads, Negro features, and close woolly or frizzly hair. They are armed with lances. Notices of a less poetical and apparently more scientific character of the occurrence of races of very small human beings are met with in Aristotle, Herodotus, Ctesias, Pliny, Pomponius Melo, and others. Aristotle places his pygmies in Africa, near the sources of the Nile, while Ctesias describes a race

<sup>1</sup> Reprinted by permission of the Managers of the Royal Institution, and revised by the author.

of dwarfs in the interior of India. The account in Herodotus is so circumstantial, and has such an air of truthfulness about it especially in connection with recent discoveries, that it is worth quoting in full.<sup>1</sup>

"I did hear, indeed, what I will now relate, from certain natives of Cyrène. Once upon a time, they said, they were on a visit to the oracular shrine of Ammon, when it chanced that, in the course of conversation with Etearchus, the Ammonian king, the talk fell upon the Nile, how that its sources were unknown to all men. Etearchus upon this mentioned that some Nasamonians had once come to his court, and when asked if they could give any information concerning the uninhabited parts of Libya, had told the following tale. (The Nasamonians are a Libyan race who occupy the Syrtes, and a tract of no great size towards the east.) They said there had grown up among them some wild young men, the sons of certain chiefs, who, when they came to man's estate, indulged in all manner of extravagancies, and among other things drew lots for five of their number to go and explore the desert parts of Libya, and try if they could not penetrate further than any had done previously. The young men therefore dispatched on this errand by their comrades with a plentiful supply of water and provisions, travelled at first through the inhabited region, passing which they came to the wild beast tract, whence they finally entered upon the desert, which they proceeded to cross in a direction from east to west. After journeying for many days over a wide extent of sand, they came at last to a plain where they observed trees growing; approaching them, and seeing fruit on them, they proceeded to gather it. While they were thus engaged, there came upon them some dwarfish men, under the middle height, who seized them and carried them off. The Nasamonians could not understand a word of their language, nor had they any acquaintance with the language of the Nasamonians. They were led across extensive marshes, and finally came to a town, where all the men were of the height of their conductors, and black-complexioned. A great river flowed by the town, running from west to east, and containing crocodiles."

It is satisfactory to know that the narrative concludes by saying that these pioneers of African exploration, forerunners of Bruce and Park, of Barth, Livingstone, Speke, Grant, Schweinfurth, Stanley, and the rest, "got safe back to their country."

Extension of knowledge of the natural products of the earth, and a more critical spirit on the part of authors, led to attempts to account for this belief, and the discovery of races of monkeys—of the doings of which, it must be said, more or less fabulous stories were often reported by travellers—generally sufficed the commentators and naturalists of the last century to explain the origin of the stories of the pygmies. To this view the great authority of Buffon was extended.

<sup>1</sup> "Herodotus," Book II, 32, Rawlinson's translation, p. 47.

Still more recently-acquired information as to the actual condition of the human population of the globe has, however, led to a revision of the ideas upon the subject, and to more careful and critical researches into the ancient documents. M. de Quatrefages, the eminent and veteran Professor of Anthropology at the Muséum d'Histoire Naturelle of Paris, especially, has carefully examined and collated all the evidence bearing upon the question, and devoted much ingenuity of argument to prove that the two localities in which the ancient authors appear to place their pygmies, the interior of Africa near the sources of the Nile, and the southernmost parts of Asia, and the characters they assign to them, indicate an actual knowledge of the existence of the two groups of small people which still inhabit these regions, the history of which will form the subject of this lecture. The evidence which has convinced M. de Quatrefages, and which, I have no doubt, will suffice for those who take pleasure in discovering an underlying truth in all such legends and myths, or in the more grateful task of rehabilitating the veracity of the fathers of literature and history, will be found collected in a very readable form in a little book published last year in the "Bibliothèque scientifique contemporaine," called "Les Pygmées," to which I refer my hearers for fuller information upon the subject of this discourse, and especially for numerous references to the literature, which, as the book is accessible to all who wish to pursue it further, I need not give here.

It is still, however, to my mind, an open question whether these old stories may not be classed with innumerable others, the offspring of the fertile invention of the human brain, the potency of which as an origin of myths has, I think, sometimes been too much underrated. I shall, therefore, now take leave of them, and confine myself to giving, as far as the brief space of time at my disposal admits, an account of our actual knowledge of the smallest races of men either existing, or, as far as we know, ever having existed on earth, and which may, therefore, taking the word in its current though not literal sense, be called the "pygmies" of the species.

Among the various characters by which the different races of men are distinguished from one another, *size* is undoubtedly one of considerable importance. Not but what in each race there is much individual variation, some persons being taller and some shorter; yet these variations are, especially in the purer or less mixed races, restricted within certain limits, and there is a general average, both for men and women, which can be ascertained when a sufficient number of accurate measurements have been recorded. That the prevailing size of a race is a really deeply-seated, inherited characteristic, and depends but little on outward conditions, as abundance of food, climate, &c., is proved by well-known facts. The tallest and the shortest races in Europe are respectively the Norwegians and the Lapps, living in almost the same region. In Africa, also, the diminutive Bushmen and the tallest race of the country, the Kaffirs, are close neighbours. The natives of the

Andaman Islands and those of many islands of the equatorial region of the Pacific, in which the conditions are similar, or if anything more favourable to the former, are at opposite ends of the scale of height. Those not accustomed to the difficulties both of making and recording such measurements will scarcely be prepared, however, to learn how meagre, unsatisfactory, and unreliable our knowledge of the stature of most of the races of mankind is at present, although unquestionably it has been considerably increased within recent years. We must, however, make use of such material as we possess, and trust to the future correction of errors when better opportunities occur.

It is convenient to divide men, according to their height, into three groups—tall, medium, and short; in Topinard's system,<sup>1</sup> the first being those the average height (of the men) of which is above 1·700 metres (5 feet 7 inches), the last those below 1·600 metres (5 feet 3 inches), and the middle division those between the two. In the short division are included certain of the Mongolian or yellow races of Asia, as the Samoyedes, the Ostiaks, the Japanese, the Siamese, and the Annamites; also the Veddahs of Ceylon and certain of the wild hill-tribes of Southern India. These all range between 1·525 and 1·600 metres—say between 5 feet and 5 feet 3 inches.

It is of none of these people that I am going to speak to-day. My pygmies are all on a still smaller scale, the average height of the men being in all cases below 5 feet, in some cases, as we shall see, considerably below.

Besides their diminutive size, I may note at the outset that they all have in a strongly-marked degree the character of the hair distinguished as frizzly—*i.e.*, growing in very fine, close curls, and flattened or elliptical in section, and therefore, whatever other structural differences they present, they all belong to the same primary branch of the human species as the African Negro and the Melanesian of the West Pacific.

I will first direct your attention to a group of islands in the Indian Ocean—the Andamans—where we shall find a race in many respects of the greatest possible interest to the anthropologist.

These islands are situated in the Bay of Bengal between the 10th and 14th parallels of north latitude, and near the meridian 93° east of Greenwich, and consist of the Great and Little Andamans. The former is about 140 miles long, and has a breadth nowhere exceeding 20 miles. It is divided by narrow channels into three, called respectively North, Middle, and South Andaman, and there are also various smaller islands belonging to the group. Little Andaman is a detached island lying about 28 miles to the south of the main group, about 27 miles in length and 10 to 18 in breadth.

Although these islands have been inhabited for a very great length of time by people whose state of culture and customs have

<sup>1</sup> "Elements d'Anthropologie Générale." Paris, 1885, p. 463.

undergone little or no change, as proved by the examination of the contents of the old kitchen-middens, or refuse heaps, found in many places in them, and although they lie so near the track of civilisation and commerce, the islands and their inhabitants were practically unknown to the world until so recently as the year 1858. It is true that their existence is mentioned by Arabic writers of the ninth century, and again by Marco Polo, and that in 1788 an attempt was made to establish a penal colony upon them by the East India Company, which was abandoned a few years after; but the bad reputation the inhabitants had acquired for ferocious and inhospitable treatment of strangers brought by accident to their shores, caused them to be carefully avoided, and no permanent settlement or relations of anything like a friendly character, or likely to afford any useful information as to the character of the islands or the inhabitants, were established. It is fair to mention that this hostility to foreigners, which for long was one of the chief characteristics by which the Andamanese were known to the outer world, found much justification in the cruel experiences they suffered from the malpractices, especially kidnapping for slavery, of the Chinese and Malay traders who visited the islands in search of *bêche de mer* and edible birds'-nest. It is also to this characteristic that the inhabitants owe so much of their interest to us from a scientific point of view, for we have here the rare case of a population, confined to a very limited space, and isolated for hundreds, perhaps thousands, of years from all contact with external influence, their physical characters unmixed by crossing, and their culture, their beliefs, their language entirely their own.

In 1857, when the Sepoy mutiny called the attention of the Indian Government to the necessity of a habitation for their numerous convict prisoners, the Andaman Islands were again thought of for the purpose. A Commission, consisting of Dr. F. J. Mouat, Dr. G. Playfair, and Lieut. J. A. Heathcote, was sent to the islands to report upon their capabilities for such a purpose; and, acting upon its recommendations, early in the following year the islands were taken possession of in the name of the East India Company by Captain (now General) H. Man, and the British flag hoisted at Port Blair, near the southern end of Great Andaman, which thenceforth became the nucleus of the settlement of invaders, now numbering about 15,000 persons, of whom more than three-fourths are convict prisoners, the rest soldiers, police, and the usual accompaniments of a military station.

The effect of this inroad upon the unsophisticated native population, who, though spread over the whole area of the islands, were far less numerous, may easily be imagined. It is simply deterioration of character, moral and physical decay, and finally extinction. The newly-introduced habits of life, vices, and diseases, are spreading at a fearful rate, and with deadly effect. In this sad history there are, however, two redeeming features which distinguish our occupation of the Andamans from that of Tasmania, where a similar tragedy was played out during the present century. In the

first place, the British Governors and residents appear from the first to have used every effort to obtain for the natives the most careful and considerate treatment, and to alleviate as much as possible the evils which they have unintentionally been the means of inflicting on them. Secondly, most careful records have been preserved of the physical characters, the social customs, the arts, manufactures, traditions, and language of the people while still in their primitive condition. For this most important work, a work which, if not done, would have left a blank in the history of the world which could never have been replaced, we are indebted almost entirely to the scientific enthusiasm of one individual, Mr. Edward Horace Man, who most fortunately happened to be in a position (as Assistant Superintendent of the Islands, and specially in charge of the natives) which enabled him to obtain the required information with facilities which probably no one else could have had, and whose observations "On the Aboriginal Inhabitants of the Andaman Islands," published by the Anthropological Institute of Great Britain and Ireland, are most valuable, not only for the information they contain, but as correcting the numerous erroneous and misleading statements circulated regarding these people by previous and less well-informed or less critical authors.

The Arab writer of the ninth century previously alluded to, states that "their complexion is frightful, their hair frizzled, their countenance and eyes frightful, their feet very large, and almost a cubit in length, and they go quite naked," while Marco Polo (about 1285) says that "the people are no better than wild beasts, and I assure you all the men of this island of Angamanain have heads like dogs, and teeth and eyes likewise; in fact, in the face they are just like big mastiff dogs." These specimens of mediæval anthropology are almost rivalled by the descriptions of the customs and moral character of the same people published as recently as 1862, based chiefly on information obtained from one of the runaway sepoy convicts, and which represent them as among the lowest and most degraded of human beings.

The natives of the Andamans are divided into nine distinct tribes, each inhabiting its own district. Eight of these live upon the Great Andaman Islands, and one upon the hitherto almost unexplored Little Andaman. Although each of these tribes possesses a distinct dialect, these are all traceable to the same source, and are all in the same stage of development. The observations that have been made hitherto relate mostly to the tribe inhabiting the south island, but it does not appear that there is any great variation either in physical characters or manners, customs, and culture among them.

With regard to the important character of size, we have more abundant and more accurate information than of most other races. Mr. Man gives the measurements of forty-eight men and forty-one women, making the average of the former 4 feet 10 $\frac{3}{4}$  inches, that of the latter 4 feet 7 $\frac{1}{4}$  inches, a difference therefore of 3 $\frac{1}{2}$  inches between the sexes. The tallest man was 5 feet 4 $\frac{1}{4}$  inches; the shortest 4 feet 6 inches. The tallest woman 4 feet 11 $\frac{1}{2}$  inches; the shortest

4 feet 4 inches. Measurements made upon the living subject are always liable to error, but it is possible that in so large a series these will compensate each other, and that therefore the averages may be relied upon. My own observations, based upon the measurements of the bones alone of as many as twenty-nine skeletons, give smaller averages, viz., 4 feet 8½ inches for the men, and 4 feet 6½ inches for the women; but these, it must be recollectcd, are calculated from the length of the femur, upon a ratio which, though usually correct for Europeans, may not hold good in the case of other races.<sup>1</sup> The hair is fine, and very closely curled; woolly, as it is generally called, or, rather, frizzly, and elliptical in section, as in the Negroes. The colour of the skin is very dark, although not absolutely black. The head is of roundish (brachycephalic) form, the cephalic index of the skull being about 82. The other cranial characters are fully described in the papers just referred to. The teeth are large, but the jaws are only slightly prognathous. The features possess little of the Negro type; at all events, little of the most marked and coarser peculiarities of that type. The projecting jaws, the prominent thick lips, the broad and flattened nose of the genuine Negro are so softened down in the Andamanese as scarcely to be recognised, and yet in the relative proportions of the limb-bones, especially in the shortness of the humerus compared with the forearm, and in the form of the pelvis, Negro affinities are most strongly indicated.

In speaking of the culture of the Adamanese, of course I only refer to their condition before the introduction of European civilisation into the islands. They live in small villages or encampments, in dwellings of simple and rude construction, built only of branches and leaves of trees. They are entirely ignorant of agriculture, and keep no poultry or domestic animals. They make rude pots of clay, sun-dried, or partially baked in the fire, but these are hand-made, as they are ignorant of the use of the potter's wheel. Their clothing is of the scantiest description, and what little they have serves chiefly for decorative or ornamental purposes, and not for keeping the body warm. They make no use of the skins of animals. They have fairly well-made dug-out canoes and outriggers, but fit only for navigating the numerous creeks and straits between the islands, and not for voyages in the open sea. They are expert swimmers and divers. Though constantly using fire, they are quite ignorant of the art of producing it, and have to expend much care and labour in keeping up a constant supply of burning or smouldering wood. They are ignorant of all metals; but for domestic purposes make great use of shells, especially a species of *Cyrena* found abundantly on the shores of the islands, also quartz chips and flakes, and bamboo knives. They have stone

<sup>1</sup> See "On the Osteology and Affinities of the Natives of the Andaman Islands" ("Journal Anthropological Institute," vol. ix, p. 108, 1879); and "Additional Observations on the Osteology of the Natives of the Andaman Islands" (*ibid.*, vol. xiv, p. 115, 1884).

anvils and hammers, and they make good string from vegetable fibres, as well as baskets, fishing nets, sleeping mats, &c. Their principal weapons are the bow and arrow, in the use of which they are very skilful. They have harpoons for killing turtle and fish, but no kind of shield or breastplate for defence when fighting. The natural fertility of the island supplies them with abundance and variety of food all the year round, the purveying of which affords occupation and amusement for the greater part of the male population. This food consists of pigs (*Sus andamanensis*), which are numerous on the islands, paradoxures, dugong, and occasionally porpoise, iguanas, turtles, turtles' eggs, many kinds of fish, prawns, mollusks, larvæ of large wood-boring and burrowing beetles, honey, and numerous roots (as yams), fruits, and seeds. The food is invariably cooked before eating, and generally taken when extremely hot. They were ignorant of all stimulants or intoxicating drinks—in fact, water was their only beverage ; and tobacco, or any substitute for it, was quite unknown till introduced by Europeans.

As with all other human beings existing at present in the world, however low in the scale of civilisation, the social life of the Andamanese is enveloped in a complex maze of unwritten law or custom, the intricacies of which are most difficult for any stranger to unravel. The relations they may or may not marry, the food they are obliged or forbidden to partake of at particular epochs of life or seasons of the year, the words and names they may or may not pronounce ; all these, as well as their traditions, superstitions, and beliefs, their occupations, games, and amusements, of which they seem to have had no lack, would take far too long to describe here ; but before leaving these interesting people, I may quote an observation of Mr. Man's, which, unless he has seen them with too *couleur-de-rose* eyesight, throws a very favourable light upon the primitive unsophisticated life of these poor little savages, now so ruthlessly broken into and destroyed by the exigencies of our ever-extending empire.

"It has been asserted," Mr. Man says, "that the 'communal marriage' system prevails among them, and that 'marriage is nothing more than taking a female slave' ; but, so far from the contract being regarded as a merely temporary arrangement, to be set aside at the will of either party, no incompatibility of temper or other cause is allowed to dissolve the union ; and while bigamy, polygamy, polyandry, and divorce are unknown, conjugal fidelity till death is not the exception but the rule, and matrimonial differences, which, however, occur but rarely, are easily settled with or without the intervention of friends." In fact, Mr. Man goes on to say, "One of the most striking features of their social relations is the marked equality and affection which subsists between husband and wife," and the consideration and respect with which women are treated might with advantage be emulated by certain classes in our own land.

It should also be mentioned that cannibalism and infanticide,

two such common incidents of savage life, were never practised by them.

We must now pass to the important scientific question. Who are the natives of the Andaman Islands, and where, among the other races of the human species, shall we look for their nearest relations?

It is due mainly to the assiduous researches into all the documentary evidence relating to the inhabitants of Southern Asia and the Indian Archipelago, conducted through many years by M. de Quatrefages, in some cases with the assistance of his colleague M. Hamy, that the facts I am about to put before you have been prominently brought to light and their significance demonstrated.

It is well known that the greater part of the large island of New Guinea, and of the chain of islands extending eastwards and southwards from it, including the Solomon Islands, the New Hebrides, and New Caledonia, and also the Fijis, are still inhabited mainly by people of dark colour, frizzly hair, and many characteristics allying them to the Negroes of Africa. These constitute the race to which the term Melanesian is commonly applied in this country, or Oceanic Negroes, the "Papouas" of Quatrefages. Their area at one time was more extensive than it is now, and has been greatly encroached upon by the brown, straight-haired Polynesian race with Malay affinities, now inhabiting many of the more important islands of the Pacific, and the mingling of which with the more aboriginal Melanesians in various proportions has been a cause, among others, of the diverse aspect of the population on many of the islands in this extensive region. These Papouas, or Melanesians, however, differ greatly from the Andamanese in many easily defined characters, which are especially, their larger stature, their long, narrow, and high skulls, and their coarser and more Negro-like features. Although undoubtedly allied, we cannot look to them as the nearest relations of our little Andamanese.

When the Spaniards commenced the colonisation of the Philippines, they met with, in the mountainous region in the interior of the Island of Luzon, besides the prevailing native population, consisting of Tagals of Malay origin, very small people, of black complexion, with the frizzly hair of the African Negroes. So struck were they with the resemblance, that they called them "Negritos del Monte" (little Negroes of the mountain). Their local name was Aëtas, or Inagtas, said to signify "black," and from which the word Aëta, generally now applied to them, is derived. These people have lately been studied by two French travellers, M. Marche and Dr. Montano; the result of their measurements gives 4 feet 8 $\frac{3}{4}$  inches as the average height of the men, and 4 feet 6 $\frac{1}{2}$  inches the average for the women. In many of their moral characteristics they resemble the Andamanese. The Aëtas are faithful to their marriage vows, and have but one wife. The affection of parents for children is very strong, and the latter have for their father and mother much love and respect. The marriage ceremony, according to M. Montano, is very remarkable. The

affianced pair climb two flexible trees placed near to each other. One of the elders of the tribe bends them towards each other. When their heads touch, the marriage is legally accomplished. A grand *fête*, with much dancing, concludes the ceremony.

It was afterwards found that the same race existed in other parts of the archipelago, Panay, Mindanao, &c., and that they entirely peopled some little islands—among others, Bougas Island, or “Isla de los Negros.”

As the islands of these eastern seas have become better known, further discoveries of the existence of a small Negroid population have been made in Formosa, in the interior of Borneo, Sandalwood Island (Sumba), Xulla, Bourou, Ceram, Flores, Solor, Lomblem, Pantar, Ombay, the eastern peninsula of Celebes, &c. In fact, Sumatra and Java are the only large islands of this great area which contain no traces of them except some doubtful cross-breeds, and some remains of an industry which appears not to have passed beyond the Age of Stone.

The Sunda Islands form the southern limit of the Negrito area; Formosa, the last to the north, where the race has preserved all its characters. But beyond this, as in Loo Choo, and even in the south-east portion of Japan, it reveals its former existence by the traces it has left in the present population. That it has contributed considerably to form the population of New Guinea is unquestionable. In many parts of that great island, small round-headed tribes live more or less distinct from the larger and longer-headed people who make up the bulk of the population.

But it is not only in the islands that the Negrito race dwell. Traces of them are found also on the mainland of Asia, but everywhere under the same conditions; in scattered tribes, occupying the more inaccessible mountainous regions of countries otherwise mainly inhabited by other races, and generally in a condition more or less of degradation and barbarism, resulting from the oppression with which they have been treated by their invading conquerors; often, moreover, so much mixed that their original characters are scarcely recognisable. The Semangs of the interior of Malacca in the Malay peninsula, the Sakays of Perak, the Moys of Annam, all show traces of Negrito blood. In India proper, especially among the lowest and least civilised tribes, not only of the central and southern districts, but almost to the foot of the Himalayas, in the Punjab, and even to the west side of the Indus, according to Quatrefages, frizzly hair, Negro features, and small stature, are so common that a strong argument can be based on them for the belief in a Negrito race forming the basis the whole pre-Aryan, or Dravidian as it is generally called, population of the peninsula. The crossing that has taken place with other races has doubtless greatly altered the physical characters of this people, and the evidences of this alteration manifest themselves in many ways; sometimes the curliness of the hair is lost by the admixture with straight-haired races, while the black complexion and small stature remain; sometimes the stature is increased, but the colour,

which seems to be one of the most persistent of characteristics, remains.

The localities in which the Negrito people are found in their greatest purity, either in almost inaccessible islands, as on the Andamans, or elsewhere in the mountainous ranges of the interior only; and their social condition and traditions, wherever they exist—all point to the fact that they were the earliest inhabitants; and that the Mongolian and Malay races on the east, and the Aryans on the west, which are now so rapidly exterminating and replacing them, are later comers into the land, exactly as, in the greater part of the Pacific Ocean, territory formerly occupied by the aboriginal dark, frizzly-haired Negroid Melanesians has been gradually and slowly invaded by the brown Polynesians, who in their turn, but by a much more rapid process, are being replaced by Europeans.

We now see what constitutes the great interest of the Andamanese natives to the student of the ethnological history of the Eastern world. Their long isolation has made them a remarkably homogeneous race, stamping them all with a common resemblance not seen in the mixed races generally met with in continental areas. For although, as with most savages, marriages within the family (using the term in a very wide sense) are most strictly forbidden, all such alliances have necessarily been confined to natives of the islands. They are the least modified representatives of the people who were, so far as we know, the primitive inhabitants of a large portion of the earth's surface, but who are now verging on extinction. It is, however, not necessary to suppose that the Andaman Islanders give us the exact characters and features of all the other branches of the race. Differences in detail doubtless existed—differences which are almost always sure to arise whenever races become isolated from each other for long periods of time.

In many cases the characters of the ancient inhabitants of a land have been revealed to us by the preservation of their actual remains. Unfortunately we have as yet no such evidence to tell us of the former condition of man in Southern Asia. We may, however, look upon the Andamanese, the Aetas, and the Semangs, as living fossils; and by their aid conjecture the condition of the whole population of the land in ancient times. It is possible, also, to follow Quatrefages, and to see in them the origin of the stories of the Oriental pygmies related by Ctesias and by Pliny.

We now pass to the continent of Africa, in the interior of which the pygmies of Homer, Herodotus, and Aristotle have generally been placed. Africa, as is well known, is the home of another great branch of the black, frizzly-haired, or Ethiopian division of the human species, which does, or did till lately, occupy the southern two-thirds of this great continent, the northern third being inhabited by Hamite and Semite branches of the great white or Caucasian primary division of the human species, or by races resulting from the mixture of these with the Negroes. But besides the true Negro, there has long been known to exist in the southern part of the continent a curiously modified type, consisting of the

Hottentots, and the Bushmen—Bosjesmen (men of the woods) of the Dutch colonists—the latter of whom, on account of their small size, come within the scope of the present subject. They lead the lives of the most degraded of savages, dwelling among the rocky and more inaccessible mountains of the interior, making habitations of the natural caves, subsisting entirely by the chase, being most expert in the use of the bow and arrow, and treated as enemies and outcasts by the surrounding and more civilised tribes, whose flocks and herds they show little respect for when other game is not within reach. The physical characters of these people are well known, as many specimens have been brought to Europe alive for the purpose of exhibition. The hair shows the extreme of the frizzly type; being shorter and less abundant than that of the ordinary Negro, it has the appearance of growing in separate tufts, which coil together into round balls compared to "peppercorns." The yellow complexion differs from that of the Negro, and, combined with the wide cheek-bones and form of the eyes, so much recalls that of certain of the pure yellow races that some anthropologists are inclined to trace true Mongolian affinities or admixture, although the extreme crispness of the hair makes such a supposition almost impossible. The width of the cheek-bones and the narrowness of the forehead and the chin give a lozenge-shape to the front view of the face. The forehead is prominent and straight; the nose extremely flat and broad, more so than in any other race, and the lips prominent and thick, although the jaws are less prognathous than in the true Negro races. The cranium has many special characters by which it can be easily distinguished from that of any other. It has generally a very feminine, almost infantile, appearance, though the capacity of the cranial cavity is not the smallest, exceeding that of the Andamanese. In general form the cranium is rather oblong than oval, having straight sides, a flat top, and especially a vertical forehead, which rises straight from the root of the nose. It is moderately dolichocephalic or rather mesaticephalic, the average index of ten specimens being 75·4. The height is in all considerably less than the breadth, the average index being 71·1. The glabella and infra-orbital ridges are little developed, except in the oldest males. The malar bones project much forwards, and the space between the orbits is very wide and flat. The nasal bones are extremely small and depressed, and the aperture wide; the average nasal index being 60·8, so they are the most platyrhine of races.

With regard to the stature, we have not yet sufficient materials for giving a reliable average. Quatrefages, following Barrow, gives 4 feet 6 inches for the men, and 4 feet for the women, and speaks of one individual of the latter sex, who was the mother of several children, measuring only 3 feet 9 inches in height; but later observations (still, however, insufficient in number) give a rather larger stature: thus Topinard places the average at 1·404 metre, or 4 feet  $7\frac{1}{2}$  inches; and Fritsch, who measured six male Bushmen in South Africa, found their mean height to be 1·444

metre, or nearly 4 feet 9 inches. It is probable that, taking them all together, they differ but little in size from the Andamanese, although in colour, in form of head, in features, and in the proportions of the body, they are widely removed from them.

There is every reason to believe that these Bushmen represent the earliest race of which we have, or are ever likely to have, any knowledge, which inhabited the southern portion of the African continent, but that long before the advent of Europeans upon the scene, they had been invaded from the north by Negro tribes, who, being superior in size, strength, and civilisation, had taken possession of the greater part of their territories, and mingling freely with the aborigines, had produced the mixed race called Hottentots, who retained the culture and settled pastoral habits of the Negroes, with many of the physical features of the Bushmen. These, in their turn, encroached upon the pure-bred Bantu Negroes from the north, and by the Dutch and English from the south, are now greatly diminished, and indeed threatened with the same fate that will surely soon befall the scanty remnant of the early inhabitants who still retain their primitive type.

At present the habitat of the Bushman race is confined to certain districts in the south-west of Africa, from the confines of the Cape Colony, as far north as the shores of Lake Ngami. Further to the north the great equatorial region of Africa is occupied by various Negro tribes, using the term in its broadest sense, but belonging to the divisions which, on account of peculiarities of language, have been grouped together as Bantu. They all present the common physical characteristics typical of the Negro race, only two of which need be specially mentioned here—medium or large stature, and dolichocephalic skull (average cranial index about 73·5).

It is at various scattered places in the midst of these that the only other small people of which I shall have to speak, the veritable pygmies of Homer, Herodotus, and Aristotle, according to Quatrefages, are still to be met with.<sup>1</sup>

The first notice of the occurrence of these in modern times is contained in "The strange adventures of Andrew Battell of Leigh in Essex, sent by the Portugals prisoner to Angola, who lived there and in the adjoining regions near eighteen years" (1589 to 1607), published in "Purchas his Pilgrimes" (1625), lib. vii, chap. iii, p. 983:—

"To the north-east of *Mani-Kesock*, are a kind of little people, called *Matimbas*; which are no bigger than Boyes of twelve yeares old, but very thicke, and live only upon flesh, which they kill in the woods with their bows and darts. They pay tribute to *Mani-Kesock*, and bring all their Elephants' teeth and tayles to him. They will not enter into any of the *Maramba's* houses, nor will

<sup>1</sup> The scattered information upon this subject was first collected together by Hamy in his "Essai de co-ordination des Matériaux récemment recueillis sur l'éthnologie des Négrilles ou Pygmées de l'Afrique équatoriale," "Bull. Soc. d'Anthropologie de Paris," tome ii (ser. iii), 1879, p. 79.

suffer any to come where they dwell. And if by chance any *Maramba* or people of *Longo* pass where they dwell, they will forsake that place and go to another. The women carry Bows and Arrows as well as the men. And one of these will walk in the woods alone and kill the Pongos with their poysoned Arrows."

Battell's narrative, it should be said, is generally admitted as having an air of veracity about it not always conspicuous in the stories of travellers of his time. In addition to the observations on the human inhabitants, it contains excellent descriptions of animals, as the pongo or gorilla, and the zebra, now well known, but in his day new to Europeans.

Dapper, in a work called "Description de la Basse Ethiopie," published in Amsterdam in 1686, speaks of a race of dwarfs inhabiting the same region, which he calls *Mimos* or *Bakke-Bakke*, but nothing further was heard of these people until quite recent times. A German scientific expedition to Loango, the results of which were published in the "Zeitschrift für Ethnologie," 1874, and in Hartmann's work, "Die Negritier," obtained, at Chinchoxo, photographs and descriptions of a dwarf tribe called "Baboukos," whose heads were proportionally large and of roundish form (cephalic index of skull, 78 to 81). One individual, supposed to be about forty years of age, measured 1·365 metre, rather under 4 feet 6 inches.

Dr. Touchard, in a "Notice sur le Gabon," published in the "Révue Maritime et Coloniale," for 1861, describes the recent destruction of a population established in the interior of this country, and to which he gives the name of "Akoa." They seem to have been exterminated by the M'Pongos in their expansion towards the west. Some of them, however, remained as slaves at the time of the visit of Admiral Fleuriot de Langle, who, in 1868, photographed one (measuring about 4 feet 6 inches high) and brought home some skulls, which were examined by Hamy, and all proved very small and sub-brachycephalic.

Another tribe, the M'Boulous, inhabiting the coast north of the Gaboon river, have been described by M. Marche as probably the primitive race of the country. They live in little villages, keeping entirely to themselves, though surrounded by the larger Negro tribes, M'Pongos and Bakalais, who are encroaching upon them so closely that their numbers are rapidly diminishing. In 1860 they were not more than 3,000; in 1879 they were much less numerous. They are of an earthy-brown colour, and rarely exceed 1·600 metre in height (5 feet 3 inches). In the rich collections of skulls made by Mr. R. B. Walker, and by M. Du Chaillu, from the coast of this region, are many which are remarkable for their small size and round form. Of many other notices of tribes of Negroes of diminutive size, living near the west coast of Equatorial Africa, I need only mention that of Du Chaillu, who gives an interesting account of his visit to an Obongo village in Ashango-land, between the Gaboon and the Congo; although unfortunately, owing to the extreme shyness and suspicion of the inhabitants, he was allowed

little opportunity for anthropological observations. He succeeded, however, in measuring one man and six women; the height of the former was 4 feet 6 inches, the average of the latter 4 feet 8 inches.<sup>1</sup>

Far further into the interior, towards the centre of the region contained in the great bend of the Congo or Livingstone River, Stanley heard of a numerous and independent population of dwarfs, called "Watwas," who, like the Batimbas of Battell, are great hunters of elephants, and use poisoned arrows. One of these he met with at Ikondou, was 4 feet 6½ inches high, and of a chocolate brown colour.<sup>2</sup> More recently Dr. Wolff describes under the name of "Batouas" (perhaps the same as Stanley's Watwas), a people of lighter colour than other Negroes, and never exceeding 1·40 metre (4 feet 7 inches) high, but whose average is not more than 1·30 (4 feet 3 inches), who occupy isolated villages scattered through the territory of the Bahoubas, with whom they never mix.<sup>3</sup>

Penetrating into the heart of Africa from the north-east, in 1870, Dr. Schweinfurth first made us acquainted with a diminutive race of people who have since attained a considerable anthropological notoriety. They seem to go by two names in their own country, *Akka* and *Tikki-tikki*, the latter reminding us curiously of Dapper's Bakke-bakke, and the former, more singularly still, having been read by the learned Egyptologist, Mariette, by the side of the figure of a dwarf in one of the monuments of the early Egyptian empire.

It was at the court of Mounza, king of the Monbuttu, that Schweinfurth first met with the Akkas. They appear to live under the protection of that monarch, who had a regiment of them attached to his service, but their real country was further to the south and west, about 3° N. lat. and 25° E. long. From the accounts the traveller received, they occupy a considerable territory, and are divided into nine distinct tribes, each having its own king or chief. Like all the other pygmy African tribes, they live chiefly by the chase, being great hunters of the elephant, which they attack with bows and arrows.

In exchange for one of his dogs, Schweinfurth obtained from Mounza one of these little men, whom he intended to bring to Europe, but who died on the homeward journey at Berber. Unfortunately all the measurements and observations which were made in the Monbuttu country by Schweinfurth perished in the fire which destroyed so much of the valuable material he had collected. His descriptions of their physical characters are therefore chiefly recollections. Other travellers—Long, Marno, and Vossion—though not penetrating as far as the Akka country, have given observations upon individuals of the race they have met with

<sup>1</sup> "A Journey to Ashango-land," 1867, p. 315.

<sup>2</sup> "Through the Dark Continent," vol. ii.

<sup>3</sup> "La Gazette Géographique," 1887, p. 153, quoted by Quatrefages.

in their travels. The Italian Miani, following the footsteps of Schweinfurth into the Monbuttu country, also obtained by barter two Akka boys, with the view of bringing them to Europe. He himself fell a victim to the fatigues of the journey and climate, but left his collections, including the young Akkas, to the Italian Geographical Society. Probably no two individuals of a savage race have been so much honoured by the attentions of the scientific world. First, at Cairo, and afterwards in Italy, Tebo (or Thibaut) and Chairallah, as they were named, were described, measured, and photographed, and have been the subjects of a library of memoirs, their bibliographers including the names of Owen, Panceri, Cornalia, Mantegazza, Giglioli and Zannetti, Broca, Hamy, and de Quatrefages. On their arrival in Italy, they were presented to the king and queen, introduced into the most fashionable society, and finally settled down as members of the household of Count Miniscalchi Erizzo, at Verona, where they received a European education, and performed the duties of pages.

In reply to an inquiry addressed to my friend Dr. Giglioli, of Florence, I hear that Thibaut died of consumption on January 28th, 1883, being then about 22 years of age, and was buried in the cemetery at Verona. Unfortunately no scientific examination of the body was allowed, but whether Chairallah still lives or not I have not been able to learn. As Giglioli has not heard of his death, he presumes that he is still living in Count Miniscalchi's palace.

One other specimen of this race has been the subject of careful observation by European anthropologists—a girl named Saida, brought home by Romolo Gessi (Gordon's lieutenant), and who is still, or was lately, living at Trieste as servant to Mde. Gessi.

The various scattered observations hitherto made are obviously insufficient to deduce a mean height for the race, but the nearest estimate that Quatrefages could obtain is about 4 feet 7 inches for the men, and 4 feet 3 inches for the women, decidedly inferior, therefore, to the Andamanese. With regard to their other characters, their hair is of the most frizzly kind, their complexion lighter than that of most Negroes, but the prognathism, width of nose, and eversion of lips characteristic of the Ethiopian branch of the human family are carried to an extreme degree, especially if Schweinfurth's sketches can be trusted. The only essential point of difference from the ordinary Negro, except the size, is the tendency to shortening and breadth of the skull, although it by no means assumes the "almost spherical" shape attributed to it by Schweinfurth.

Some further information about the Akkas will be found in the work, just published, of the intrepid and accomplished traveller, in whose welfare we are now so much interested, Dr. Emin Pasha, Gordon's last surviving officer in the Soudan, who, in the course of his explorations, spent some little time lately in the country of the Monbuttu. Here he not only met with living Akkas, one of whom he apparently still retains as a domestic in his service, and of

whose dimensions he has sent me a most detailed account, but he also, by watching the spots where two of them had been interred, succeeded in obtaining their skeletons, which, with numerous other objects of great scientific interest, safely arrived at the British Museum in September of last year. I need hardly say that actual bones, clean, imperishable, easy to be measured and compared, not once only, but any number of times, furnish the most acceptable evidence that an anthropologist can possess of many of the most important physical characters of a race. There we have facts which can always be appealed to in support of statements and inferences based on them. Height, proportions of limbs, form of head, characters of the face even, are all more rigorously determined from the bones than they can be on the living person. Therefore, the value of these remains, imperfect as they unfortunately are, and of course insufficient in number for the purpose of establishing average characters, is very great indeed.

As I have entered fully into the question of their peculiarities elsewhere,<sup>1</sup> I need give now only a few of the most important and most generally to be understood results of their examination. The first point of interest is their size. The two skeletons are both those of full-grown people, one a man, the other a woman. There is no reason to suppose that they were specially selected as exceptionally small: they were clearly the only ones which Emin had an opportunity of procuring; yet they fully bear out, more than bear out, all that has been said of the diminutive size of the race. Comparing the dimensions of the bones, one by one, with those of the numerous Andamanese that have passed through my hands, I find both of these Akkas smaller, not than the average, but smaller than the smallest; smaller also than any Bushman whose skeleton I am acquainted with, or whose dimensions have been published with scientific accuracy. In fact, they are both, for they are nearly of a size, the smallest normal human skeletons which I have seen, or of which I can find any record. I say, normal, because they are thoroughly well-grown and proportioned, without a trace of the deformity almost always associated with individual dwarfishness in a taller race. One only, that of the female, is sufficiently perfect for articulation. After due allowance for some missing vertebræ, and for the intervertebral spaces, the skeleton measures from the crown of the head to the ground exactly 4 feet, or 1·218 metre. About half an inch more for the thickness of the skin of the head and soles of the feet would complete the height when alive. The other (male) skeleton was (judging by the length of the femur) about a quarter of an inch shorter.

The full-grown woman of whom Emin gives detailed dimensions is stated to be only 1·164 metre, or barely 3 feet 10 inches.<sup>2</sup> These

<sup>1</sup> *V. supra*, p. 3.

<sup>2</sup> In his letters Emin speaks of an Akka man as "3 feet 6 inches" high, though this does not profess to be a scientific accurate observation, as does the above. He says of this man that his whole body was covered by thick, stiff hair, almost like felt, as was the case with all the Akkas he had yet examined.

heights are all unquestionably less than anything that has been yet obtained based upon such indisputable data. One very interesting and almost unexpected result of a careful examination of these skeletons is that they conform in the relative proportions of the head, trunk, and limb, not to dwarfs, but to full-sized people of other races, and they are therefore strikingly unlike the stumpy, long-bodied, short-limbed, large-headed pygmies so graphically represented fighting with their lances against the cranes on ancient Greek vases.

The other characters of these skeletons are Negroid to an intense degree, and quite accord with what has been stated of their external appearance. The form of the skull, too, has that sub-brachycephaly which has been shown by Hamy to characterise all the small Negro populations of Central Africa. It is quite unlike that of the Andamanese, quite unlike that of the Bushmen. They are obviously Negroes of a special type, to which Hamy has given the appropriate term of *Negrillo*. They seem to have much the same relation to the larger long-headed African Negroes that the small round-headed Negritos of the Indian Ocean have to their larger long-headed Melanesian neighbours.

At all events, the fact now seems clearly demonstrated that at various spots across the great African continent, within a few degrees north and south of the equator, extending from the Atlantic coast to near the shores of the Albert Nyanza ( $30^{\circ}$  E. long.), and perhaps, if some indications which time will not allow me to enter into now (but which will be found in the writings of Hamy and Quatrefages), even further to the east, south of the Galla land, are still surviving, in scattered districts, communities of these small Negroes, all much resembling each other in size, appearance, and habits, and dwelling mostly apart from their larger neighbours, by whom they are everywhere surrounded. Our information about them is still very scanty, and to obtain more would be a worthy object of ambition for the anthropological traveller. In many parts, especially at the west, they are obviously holding their own with difficulty, if not actually disappearing, and there is much about their condition of civilisation, and the situations in which they are found, to induce us to look upon them, as in the case of the Bushmen in the south and the Negritos in the east, as the remains of a population which occupied the land before the incoming of the present dominant races. If the account of the Nasamonians related by Herodotus be accepted as historical, the river they came to, "flowing from west to east," must have been the Niger, and the northward range of the dwarfish people far more extensive twenty-three centuries ago than it is at the present time.<sup>1</sup>

<sup>1</sup> Mr. R. G. Haliburton, in a letter addressed to the Secretary of the Royal Society, dated Oran, May 20th, 1888, part of which appeared in "Nature," for May 31st, speaks of the recent discovery of a dwarf race, only 4 feet high, "natives of Akkah, an extensive but secluded and unknown district, situated some hundreds of miles south of the southern limits of the Empire of Morocco, and bounding on the desert of Sahara and the Draoh country."

This view opens a still larger question, and takes us back to the neighbourhood of the south of India as the centre from which the whole of the great Negro race spread, east over the African continent, and west over the islands of the Pacific, and to our little Andamanese fellow subjects as probably the least modified descendants of the primitive members of the great branch of the human species characterised by their black skins and frizzly hair.

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**DR. TYLOR on MARRIAGE SYSTEMS and LAWS of DESCENT.**

Dr. E. B. TYLOR recently gave a lecture in the Theatre of the Museum at Oxford on a subject which is likely to be the focus of a good deal of controversy among anthropologists within the next few years, with the view of applying a strict scientific method to the discussion of the early development of the laws of Marriage and of Descent. Dr. Tylor has, with the labour of many years, compiled tabular statements of the marriage systems of some 360 tribes and nations; he has classified his schedules by what he calls the "method of adhesions," which shows to what extent any definite rule co-exists with other rules not obviously connected with it. As a first test of this statistical method, he brought forward the quaint barbaric custom which forbids the husband and his wife's parents to speak to or look at one another, or to mention one another's names. About seventy peoples practise this custom or the converse one—that a wife and her husband's relations ceremonially cut one another. Now a classification of the marriage-rules of mankind shows a widespread and marked distinction between the nations in which the husband goes to live with his wife's family and those in which he takes his wife away to his own home. Dr. Tylor's tables show conclusively that the custom of avoidance between the husband and his wife's family occurs almost exclusively in nations of the first kind, and this at once suggests the explanation of the custom; for as the husband is an interloper in the family he must not be treated as a member of it; in fact he is not "recognised." Another closely allied custom is that of naming the father after the child; for instance, Moffatt the missionary was known to many South African tribes only as *Ra Mary*, "the father of Mary." Dr. Tylor confessed to having been astonished when his tables made it clear for the first time that the tribes who do this are the same who live in their wives' families and avoid their wives' relatives, but he suggested that the explanation could be found in the proceedings of the Cree Indians of Canada, among whom the husband, though living in his wife's house, may never speak to his father-in-law or

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mother-in-law till his first child is born. This event alters the whole situation, for, though the father is not a member of the family, his child is, and confers on him the status of "Father-of-so-and-so," which becomes his name, and the whole is brought to a logical conclusion by the family ceasing to cut him.

This method of tracing the connection between customs was applied to the discussion of the two great social systems, the patriarchal under which we live, and the matriarchal in which descent and inheritance follow the mother's side, and the natural guardian of the children is the maternal uncle. Dr. Tylor was able to bring very strong evidence in favour of the more primitive character of matriarchy, by showing that there are survivals of matriarchal institutions in patriarchal tribes, thus confirming the conclusions of Bachofen, McLennan, Lubbock, and Fison. He gave one interesting experience of Major Powell of the American Bureau of Ethnology, who has seen the hunters of a matriarchal tribe driven by scarcity of game to wander to a distance, taking their wives with them, and becoming there and then the founders of a patriarchal family.

The "method of adhesions" also clears up a number of doubtful points in the institution of exogamy, which compels a man to marry outside his own clan or class, so that a man of the Bear Clan may not marry a Bear but may marry a Hawk. This institution is very widely distributed, and there occurs also a system of relationship names entirely different from ours, to which the Hon. L. H. Morgan, who became acquainted with it among the Iroquois Indians, has given the name of the "classificatory system." In it not only a man's real father but his father's brothers are reckoned as fathers, and his mother's sisters are all his mothers, whereas his mother's brothers and his father's sisters are only uncles and aunts; similarly among what we call first cousins some are called brothers and sisters, the rest being mere cousins. Some years ago the Rev. Lorimer Fison pointed out that this eccentric custom is really derived from exogamy, those first cousins who, being of the same clan cannot marry, being reckoned as brothers and sisters. Dr. Tylor refuted by means of his statistics several explanations which have been proposed to account for exogamy, and expressed his belief in one, namely, that even the most barbaric races know that no permanent alliance offensive or defensive can be made with another tribe except through intermarriage. A small tribe surrounded by hostile neighbours has only two alternatives, to marry out or be killed out. Exogamy is thus an early method of political self-preservation.—From the "Oxford Magazine," June 13th, 1888.

## APPARENT SURVIVAL of a HUMAN PAIRING SEASON.

[Extract from a memoir on "The Life Statistics of an Indian Province," by Mr. S. A. HILL, Allahabad, published in "Nature," July 12, 1888. A few trifling verbal alterations have been made to adapt it to its present form.—ED.]

WHEN the birth statistics are analysed with reference to the annual period, striking and curious results are brought out. The numbers registered, when tabulated month by month, corrected (for certain causes of error by a method fully explained in the memoir from which this is an extract), and thrown into the form of average rates per thousand per annum, give the following table :—

Month.	Males.	Females.	Total.	Number of Males to 100 Females.
January	22·67	21·92	44·59	103·42
February	22·31	21·53	43·84	103·67
March	20·72	19·95	40·67	103·86
April	20·17	19·30	39·47	104·51
May	18·46	17·64	36·11	104·65
June	18·12	17·30	35·43	104·74
July	20·80	19·70	40·50	105·59
August	25·81	24·72	50·53	104·41
September	28·85	27·86	56·71	103·55
October	25·30	27·41	55·71	103·25
November	25·89	25·15	51·04	102·94
December	25·36	24·88	50·24	101·52
Year	23·12	22·28	45·40	103·77

From the existence of the *Holi* festival among the Hindus, and of similar spring festivals, accompanied with lascivious songs and dances, among many barbarous tribes, as well as from the traces of such festivals still surviving in Europe, and the hints given by classical writers regarding the nature of certain annual religious mysteries performed by the early Greeks and Romans, anthropologists have thought that possibly, during pre-historic times, the human species, like the lower animals in a state of nature, had an annual pairing-time. If any traces of such a condition still survive, we may with some confidence look for them in India, where a large number of the poorer classes are chronically on the verge of starvation, and the different seasons are sufficiently marked in character to affect people differently both in body and in mind. The birth-rates in the above table exhibit a most distinct annual variation, smoother and more uniform in character than any of the mortality curves, and with a range equal to nearly 50 per cent. of the mean value. The minimum falls in June and the maximum in September,—dates which point to a maximum of conceptions in December, and a minimum in September. The latter month is near the end of the long and depressing hot season, when malarial influences are rapidly increasing to a maximum, the food-supply of the year is nearly exhausted, and the vitality and energy of the people have reached low water mark. In December, on the other hand, not only is the salubrity of the country greatly increased as shown by the rapid diminution of nearly every cause of death, but food is again cheap and abundant. The crops of millet, on

which the poorer classes live, are sown in July and reaped in November. During December and the latter half of November they are threshed out, and then is the season for paying the village functionaries and labourers their share of the produce. Consequently food is more abundant at this time of the year than at any other, and as a result of these conditions we find a large number of births the following September and October.

It thus appears that among the poorest of the population there is probably still a more or less distinct annual reproductive season, but instead of being determined by the returning warmth of spring, as must have been the case in pre-historic Europe, it follows the annual return of healthy conditions with abundant food supply. That the *Holi* festival occurs in spring, instead of in December, is perhaps to be accounted for as a survival from a time when the ancestors of the Hindus lived in a colder climate.

#### *The DIEYERIE TRIBE, SOUTH AUSTRALIA.*

THE following is an extract from a letter addressed by Mr. S. Gason, of Beltana, South Australia, to Mr. J. G. Frazer, of Cambridge, in reply to an enquiry chiefly to ascertain whether sexual intercourse (as distinct from marriage) is permitted within the totem class. "This," writes Mr. Frazer, "is an important distinction which is generally overlooked by writers who describe totem tribes. Usually they merely say that a man may not marry a woman of his own class. Now on the hypothesis of the origin of exogamy proposed by the late J. F. McLennan in a recent number of the "English Historical Review," one would expect that though *marriage* within the totem class was always prohibited, sexual intercourse was formerly permitted, and we would expect to find traces of this permission surviving in the shape either of a general laxity in the sexual relations of members of the same class, or of special relaxations granted at certain times, as at *corrobories*. So far as Mr. Gason's present evidence goes, no such traces exist among the Dieyerie."

Mr. Gason's reply is as follows:—

"With regard to your enquiries as to whether the members of the same branch (class or totem) are allowed to marry, I reply certainly not; nor do they have sexual intercourse with each other, as it is an abomination in the eyes of the tribe, and strictly against their laws and customs. To have sexual intercourse with the same branch or totem would be equal to incest, and would be called 'booyooloo-parchana,' which would be a terrible accusation, and the word would only be made use of in a state of frenzy or in a dreadful quarrel. Punishment of the above case would be death on the man's part, and the severe punishment of the woman. There is no doubt that men and women of the same branch or totem,

*i.e.*, a man Rat and a woman Rat, may have sexual intercourse in a secret way, but incest is unheard of, and I cannot believe that such a case ever happened. See how Nature or Providence has guided these aboriginal savages to most beautiful and grand moral laws. No race, in my opinion, are more affectionate to their near blood relations, and show greater reverence to their parents and offspring; although adultery amongst opposite branches or totems, *i.e.*, Emu and Dog, is common, and a daily occurrence, and is not considered a crime. If adultery is found out, an ordinary fight follows with only those directly concerned.

"With regard to your other enquiries respecting the objection some savages have to seeing blood, it is quite the reverse here, as in the ceremony of "willyaroo" the young man after going through the usual mutilations, *i.e.*, having horizontal deep cuts in the nape of the neck, a spray of blood is injected from the arms of several chiefs on to the man's body, until the whole and every part of his frame is covered with blood. The blood on the young man must not be rubbed off, but must *wear* off, and he cannot appear nor must he be seen by either woman, child, or uncircumcised boys. A piece of wood about nine inches long, two and a half wide, and a sixteenth of an inch thick, with a hole at one end, and a piece of string made of human hair about nine feet long is given to the young man by one of the chiefs. The young man must twirl this stick, "yuntha," round his head as he travels in the day. The twirling of this stick causes a humming noise; this they believe causes a large harvest of iguanas. The reason for this spray of blood being spurted over the young man is to instil into his mind that if ever he should be wounded in battle or fighting, and see the blood run from his wounds, he should not be faint-hearted, but should say, 'This little blood is nothing, for I have had the whole of my body covered in blood and I was not frightened; why then should I be faint-hearted now on seeing a little blood?'

"With regard to the menstruation the aborigines think that the devil (cootchie) causes this as a curse upon women for their infidelity. While the menstruation is on they are prohibited from eating fish of all kinds, and are considered filthy and exceedingly low until they are free from it, but are not considered dangerous and<sup>1</sup> avoided by man.

"Any diseases arising from the above are on all occasions treated by women, and under no circumstances does man interfere."

<sup>1</sup> Mr. Gason first wrote *but* instead of *and*; from this it would seem that the negative is not meant to apply to the last sentence.—J.G.F.

**SOME RECENT PUBLICATIONS OF THE BUREAU OF ETHNOLOGY,  
WASHINGTON, D.C., U.S.A.**

THE Bureau of Ethnology, Washington, continues to issue from time to time most valuable tracts in connection with American anthropology. Five of these lie before us, each deserving the attention of English anthropologists, although two of them will chiefly interest philologists, for they consist solely of a catalogue of books relating to the Eskimo and Sianan languages, and it will surprise many to find that the bibliography of these little known tongues is sufficient to fill respectively 116 and 87 closely printed pages.

These are the first instalments of that, which (judging by these) seems likely to be the gigantic work undertaken by Mr. Pilling, of cataloguing "the works relating to each of the more important linguistic stocks of North America." Mr. Pilling certainly deserves the hearty thanks of ethnologists for thus bringing before them the large amount of extant literature relating to a race which of late years has excited so much interest on account of the theory of Mr. Boyd Dawkins, who sees in the Eskimo the lineal descendants of the cave men of Europe. In his preface, Mr. Pilling says that "people speaking the Eskimo language are more widely scattered, and with perhaps two or three exceptions, cover a wider range of territory than those of any other of the linguistic stocks of North America. From Labrador, on the east, their habitations dot the coast line to the Aleutian Islands, on the west, and a dialect of the language is spoken on the coast of North-eastern Asia. As far north as the white man has gone, remains of their deserted habitations are found, and southward they extend on the east coast to latitude 50°, and on the west coast to latitude 60°. Within this area a number of dialects are spoken." Again Mr. Pilling says, "The vocabularies collected by Nordenskiöld near Behring Straits contain Sandwich Island words, imported by sailors on whaling vessels, which words have come into general use among the Indians of that region." This is a curious fact, and seems to show that language cannot be trusted as a racial distinction, especially in modern times.

As regards the Sianan languages, Mr. Pilling says the publications relating to it "cover, perhaps a wider range than those of any other linguistic group of North America," and it is interesting to find that the earliest vocabulary was compiled about 1680, by Hennepin. It is gratifying to know that the British Museum contains the best collection of Arctic literature, and as regards texts in both the Eskimo and Sianan languages, ranks next to the collection of Major Powell of Washington.

In "Perforated Stones from California" Mr. Henry W. Henshaw, gives an interesting essay on the varieties and uses of these stones, not only in California but in other parts of the world. The use of perforated stones attached to sticks in digging, is shown as used in South Africa, and in various groups of islands in the Pacific, as

well as in different parts of North America. There are also perforated stones which are used in games, some again as net sinkers, hammers, axes, and clubs, whilst others, of a more fanciful shape, are found mounted on staves and adorned with feathers, as symbols of authority, not only in California but also in Africa and New Guinea. Many star-shaped stones are found in ancient Mexico and Peru, as also copper implements of the same shape. One at least of these has been found mounted on a handle, but whether it was used as a weapon, or as a symbol of authority remains doubtful. That some of these perforated stones were attached to thongs and used as weapons, seems probable, and doubtless the so-called ceremonial or banner stones had a double use, for whilst they might when attached to staves, be stuck in the ground as symbols of authority, they would, especially when secured to the staves by gum or thongs of leather, form formidable weapons, wherewith any one resisting the authority of the chief might be instantly killed. Mr. Henshaw has brought together an immense number of authorities with regard to the various uses of these perforated stones, and the geographical distribution of the various types is worthy of notice.

"The Use of Gold and other Metals among the Ancient Inhabitants of Chiriqui, Isthmus of Darien," by William H. Holmes, is the title of another of these interesting pamphlets, in which the author discusses the varieties of metal known to the ancient inhabitants of the Isthmus, and the use of gold, silver, copper, and bronze in forming those curious and characteristic figures so well known to antiquaries; the gold appears to have been always more or less alloyed with copper, and it is remarkable that most of the manufactured articles seem to have been either plated or washed over with pure gold, whilst the body or foundation was of base gold or of nearly pure copper. These objects are mostly found in graves, and were evidently used as charms or ornaments, having usually rings for suspension ; they consist chiefly of animal forms, some very grotesque. There are many problems connected with these curious relics, the chief being the mode of construction and joining of the several parts, the manner of plating or washing them with gold, and whether they were of native or foreign manufacture. With regard to the bronze articles, Mr. Holmes says, "We have no information in regard to the origin of the tin. It is not found in a native state, and since it seems hardly probable that the Chiriquians understood smelting ores, we are left in doubt as to whether it was obtained from more cultured nations to the north or south, or from Europeans." Mr. Holmes does not assign a very high antiquity to these curious relics, but the fact that in most cases the human remains with which they have been interred are entirely destroyed by time, would seem to denote the contrary, especially as the graves appear to have been excavated at a considerable depth, sometimes as much as eighteen feet from the surface, the body and articles buried with it being very carefully closed in with slabs of stone, and the pit filled up with loose stones and rubble, brought, it is

said, from a great distance. Among the metal objects found are small bronze bells of different shapes, gilded, and almost the only objects besides those of metal, are of stone and clay, the latter very abundant.

The fifth pamphlet on our list contains an account by Cyrus Thomas of the work carried on in mound exploration by the Bureau of Ethnology, and is especially valuable because of the care with which the work is carried out, and the minuteness of the records made of the several finds. The area examined consists of part of the United States, east of the Rocky Mountains, adjoining British territory, which is regarded as forming a well-marked archaeological area, embracing the valley of the Mississippi from Wisconsin southward, Ohio, southward through Kentucky to Mississippi, and the valleys of Eastern Tennessee, and Western North Carolina, thence southward through Georgia and Alabama to Florida. The number of specimens already obtained is not less than thirty-eight thousand.

Among the finds are many objects quite modern, such as silver brooches, &c., one with 'Montreal' stamped upon it, iron knives, brass kettles with iron handles, glass beads, and other things of recent use; also in comparatively modern Indian graves, sleigh bells or hawk bells of copper, with pebble and shell bead rattles, all of the same pattern and finish, though found in graves of different ages, and at widely different points. These should be compared with those from Chiriqui mentioned above, and with the ancient Mexican examples. From the discoveries made, Mr. Thomas comes to the conclusion that "the links discovered, connecting the Indians and mound builders, are so numerous and well established, that there should be no longer any hesitancy in accepting the theory that the two are one and the same people," also "that the statements of the early navigators and explorers as to the habits, customs, circumstances, &c., of the Indians when first visited by Europeans, are largely confirmed by what has been discovered in the mounds and other ancient works;" that the discoveries are against the theory that the mound builders were Mayas or Mexicans, or Pueblo tribes from New Mexico, and that although some of the relics belong to the remote pre-historic past, the European influence in many is so pronounced, as to prove them to have been built since the Spanish conquest. We are, however, promised a grand work upon the subject, now nearly ready, with maps and profuse illustrations, which will make these points clear, and set at rest the various theories which have been broached from time to time without sufficient knowledge.

A. W. BUCKLAND.

*The PRIMITIVE HUMAN HORDE.*

*To the Editor of the "Journal of the Anthropological Institute."*

SIR,

I have no intention of continuing the discussion on this subject, as I have nothing to alter in my former letter. My object was to show, what I still maintain, that Mr. Gomme had signally failed to establish the former existence of such a "primitive group" as Dr. McLennan's hypothesis requires; and that, if his reasoning throws any light on the nature of the primitive group, it favours the idea that its members were blood relations and did not intermarry. In answer to his enquiry, I may say that, while I admit the Abors may have retained "some very primitive characteristics during the time they were advancing," I certainly deny, what Mr. Gomme affirms, that "internally there are no traces [among the Abors] of the cohesion resulting from the ties of recognised kinship."

It has become customary to refer to primitive man as having had none of the restraints on sexual intercourse found in civilised societies. It was, in great measure as a protest against this view, notwithstanding the high authority on which it is held, my criticism of Mr. Gomme's paper was written. I hope that during the present year will be published the result of my enquiries on "Marriage and Kinship" among primitive peoples, when Mr. Gomme will be able to see the grounds on which I contend that "totemism and exogamy imply the existence of kinship by blood."

Welton, Yorkshire.

Yours obediently,

C. STANILAND WAKE.

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**INTERNATIONAL CONGRESS OF AMERICANISTS.**

THIS Congress will hold its seventh session in Berlin, commencing on October 2nd. It will be under the presidency of Dr. Reiss, who is the President of the German Society for Anthropology, Ethnology, and Prehistoric Archaeology. The Vice-Presidents are Professors Virchow, Bastian, and Baron Von Richthofen. The work of the first day is to bear upon the discovery of the New World, the pre-Columbian history of America, and American geology. The second day will be devoted to archaeology; the third to anthropology and ethnography; and the fourth to philology and palaeography.

The following subjects are put down for discussion under the head of "Anthropology and Ethnography":—Geographical provinces, illustrated by the ethnology of America (Reporter, Dr. Bastian). Nomenclature of the peoples and tribes of America before the conquest: Ethnographical map of the territory occupied by each: Anthropological classification of the ancient and modern

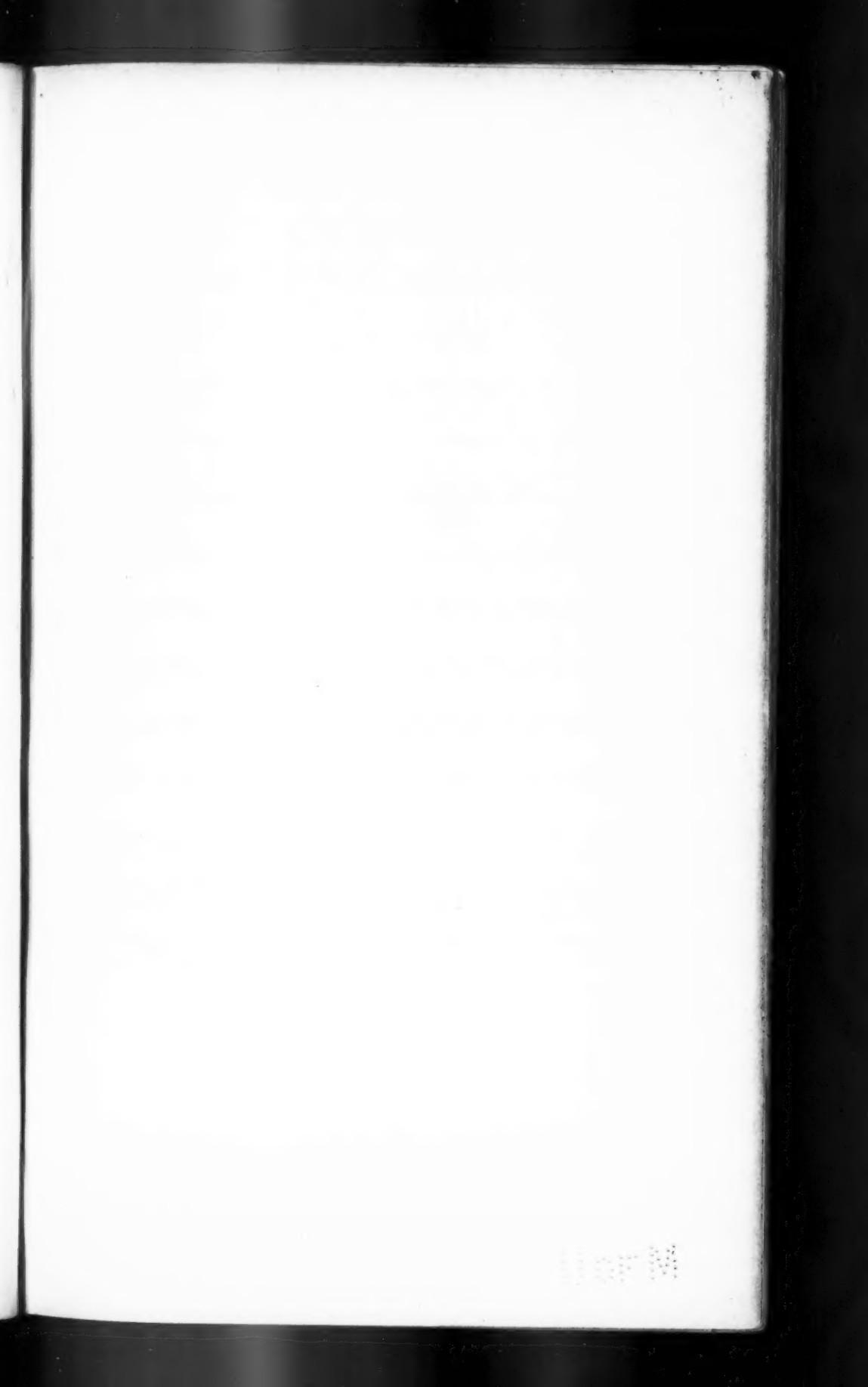
savages of America : Craniological atlas (Reporter, Prof. Virchow). Can the study of the hair serve to determine the question of the unity or plurality of the American race? (Reporter, Dr. Fritsch). Do our present craniological studies allow us to affirm that the American races existed in America from the quaternary period, and that the conformation of their crania was the same as that of the Indians of the present day? (Reporter, M. Cora). Can we say that all the varieties of the American race are indigenous to America, and have not been subjected to essential alteration by foreign influences? (Reporter, M. Cora). On the artificial deformation of crania among the ancient American tribes compared with the deformations at present practised among the peoples of Asia, Europe, and the Pacific Islands (Reporter, Dr. Virchow). Does there exist among the Indians of the N.W. coast of America distinctive characteristics indicating affinities with Asiatic tribes? (Reporter, M. Aurel Kranse). Anthropology of the people inhabiting Mexico at the time of Cortez (Reporter, M. Hartmann). Morals and law in ancient Mexico (Reporter, M. Grossi). Anthro-pophagy and human sacrifices in pre-Columbian America (Reporter, M. Grossi). Cremation in America before and since the time of Columbus (Reporter, M. Grossi). Races of domestic animals in ancient Peru (Reporter, M. Nehring). Cultivated plants among the ancient Peruvians (Reporter, M. Wittnack).

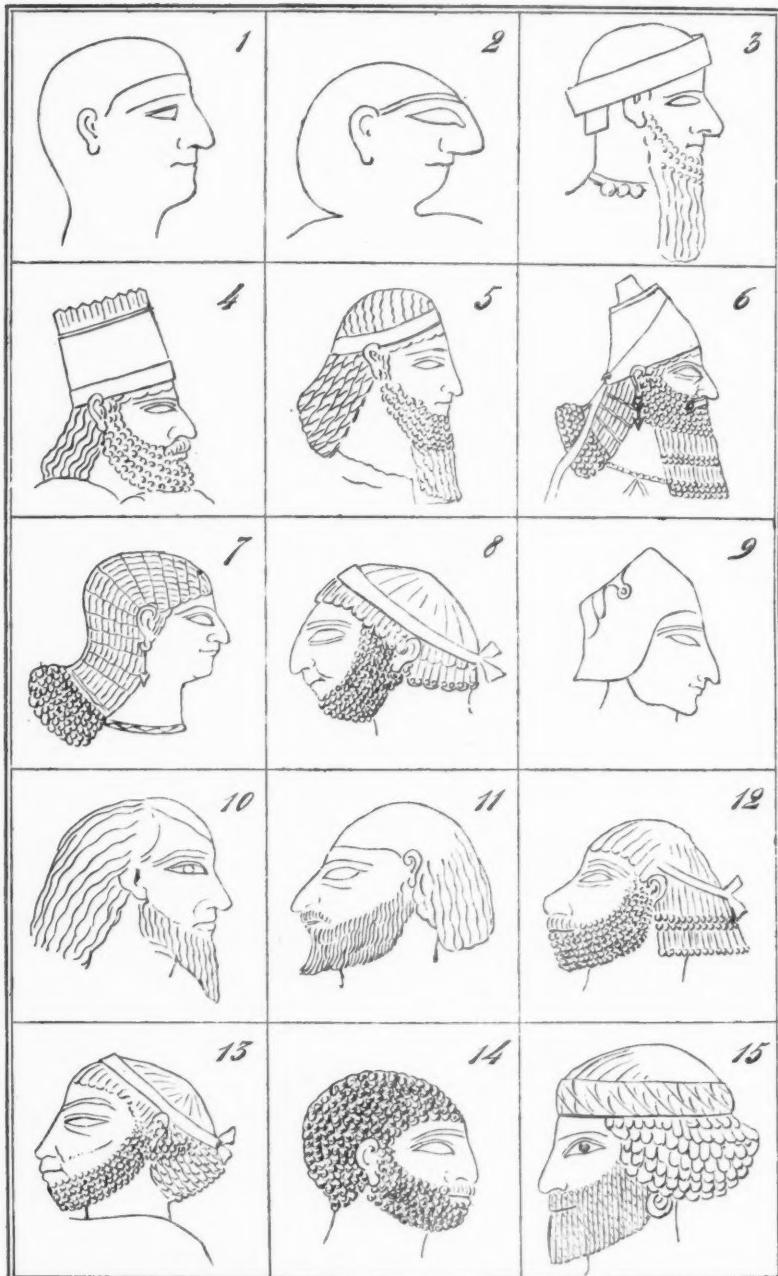
All communications relating to the Congress should be addressed to Dr. Hellmann, General Secretary to the Organising Committee, 120, Königgrätzer Strasse, Berlin, S.W. The subscription for membership (10s.) should be sent to the Treasurer, Consul-General W. Schönlank, 71, Köpnick Strasse, Berlin, S.O.

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#### THE BRITISH ASSOCIATION.

THE fifty-eighth annual meeting will be held at Bath under the presidency of Sir Frederick J. Bramwell, F.R.S., commencing on September 5th. The section of anthropology will be presided over by Lieut.-General A. H. Pitt-Rivers, D.C.L., F.R.S. The Vice-Presidents of this section are Dr. J. Beddoe, F.R.S., and Dr. J. Evans, F.R.S. The Secretaries are Mr. G. W. Bloxam, who will act as Recorder, and Dr. J. G. Garson.





PROFILES FROM THE ASSYRIAN AND BABYLONIAN MONUMENTS.